Drawing Amendments:
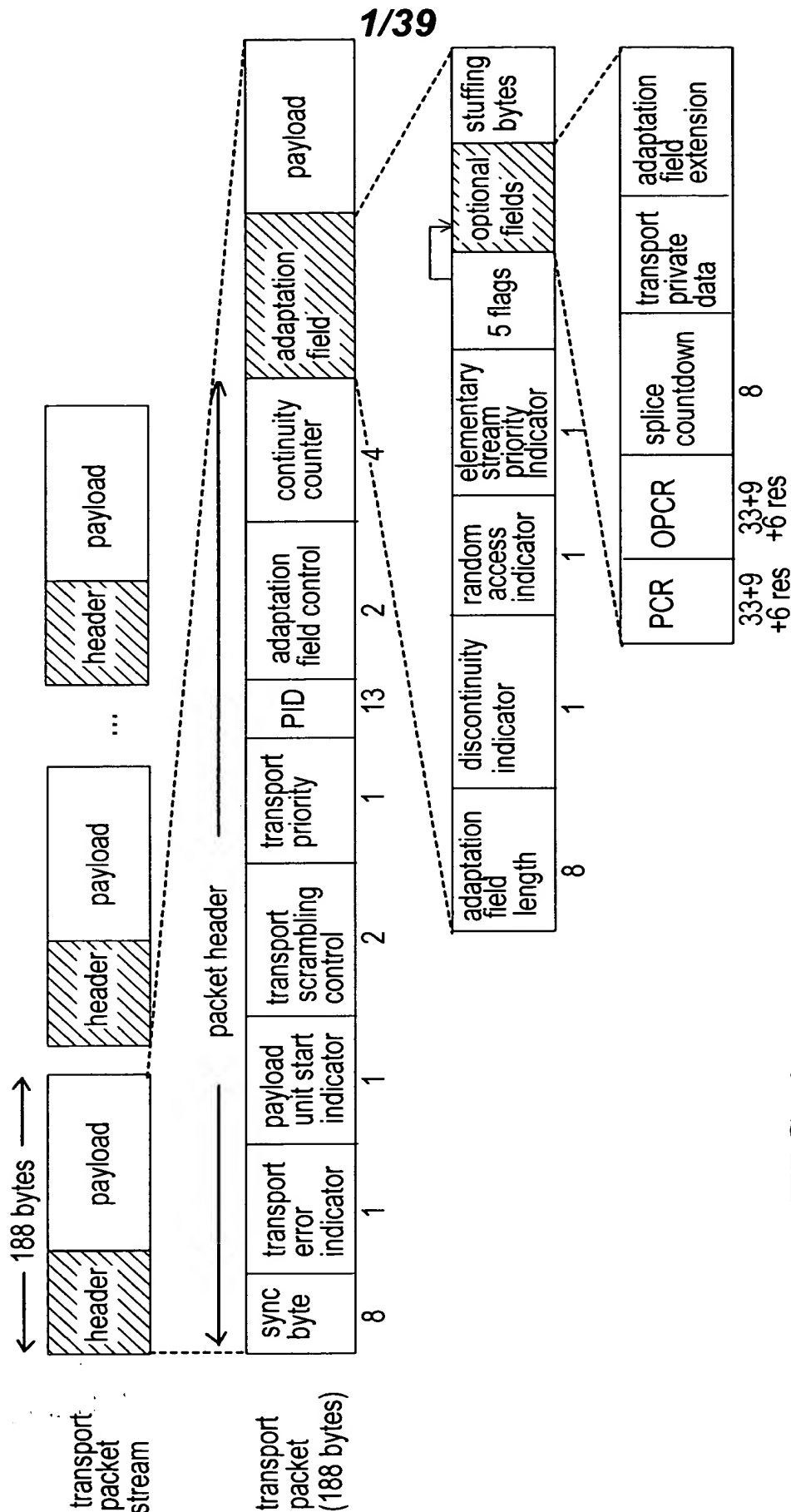
The attached 39 sheets of drawings include changes to FIGs. 1-43 correcting various informalities identified during the prosecution of the related cases. No new matter has been introduced. These sheets replace the original sheets including FIGs. 1-43.

REPLACEMENT DRAWING

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1/39

OIPE JC102
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transport packet stream

← 188 bytes →

header | payload
header | payload
...
header | payload

packet header

transport packet (188 bytes)

| sync byte | transport error indicator | payload unit start indicator | transport priority | transport scrambling control | PID | adaptation field control | continuity counter | adaptation field |
| 8 | 1 | 1 | 1 | 2 | 13 | 2 | 4 | |

| adaptation field length | discontinuity indicator | random access indicator | elementary stream priority indicator | 5 flags | optional fields | stuffing bytes |
| 8 | 1 | 1 | 1 | | | |

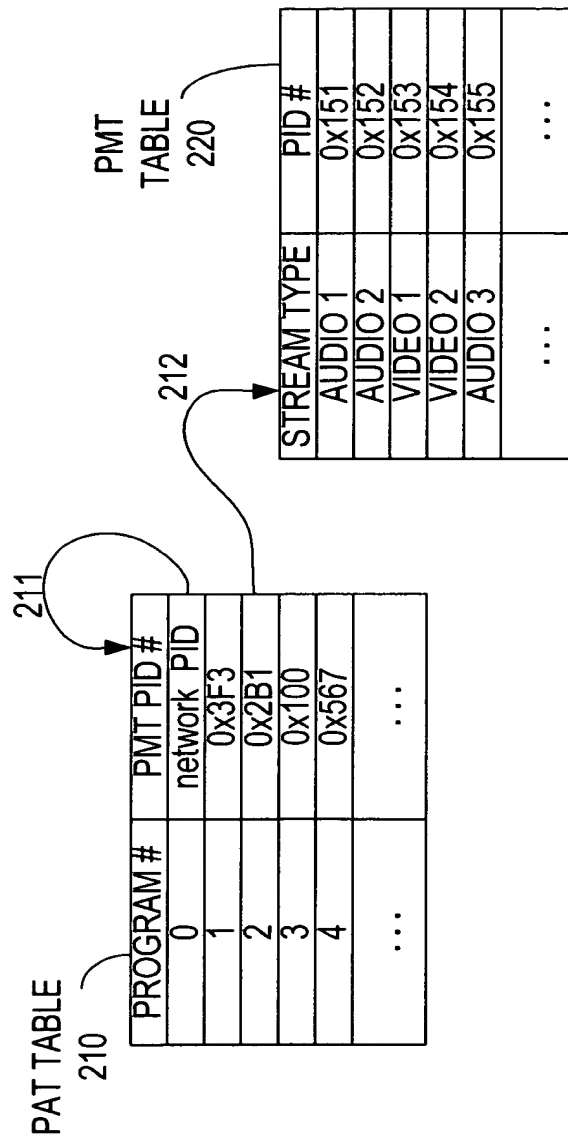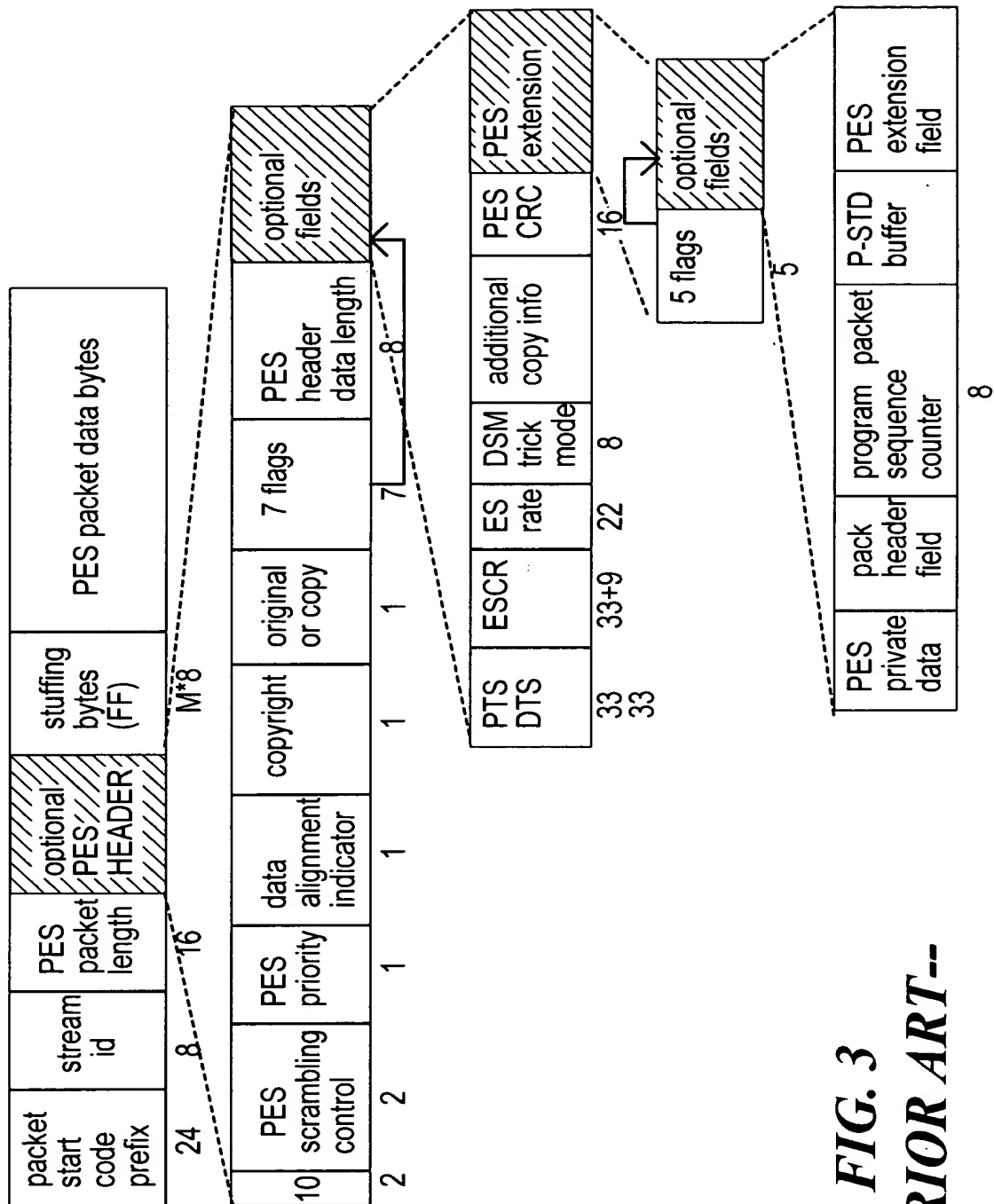| PCR | OPCR | splice countdown | transport private data | adaptation field extension |
| 33+9 +6 res | 33+9 +6 res | 8 | | |

FIG. 1

--PRIOR ART--

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2/39

PMT
TABLE
220

STREAM TYPE	PID #
AUDIO 1	0x151
AUDIO 2	0x152
VIDEO 1	0x153
VIDEO 2	0x154
AUDIO 3	0x155
...	...

212

211

PAT TABLE
210

PROGRAM #	PMT PID # / network_PID
0	0x3F3
1	0x2B1
2	0x100
3	0x567
4	
...	...

FIG. 2
--PRIOR ART--

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Inventor: Branko Kovacevic et al.
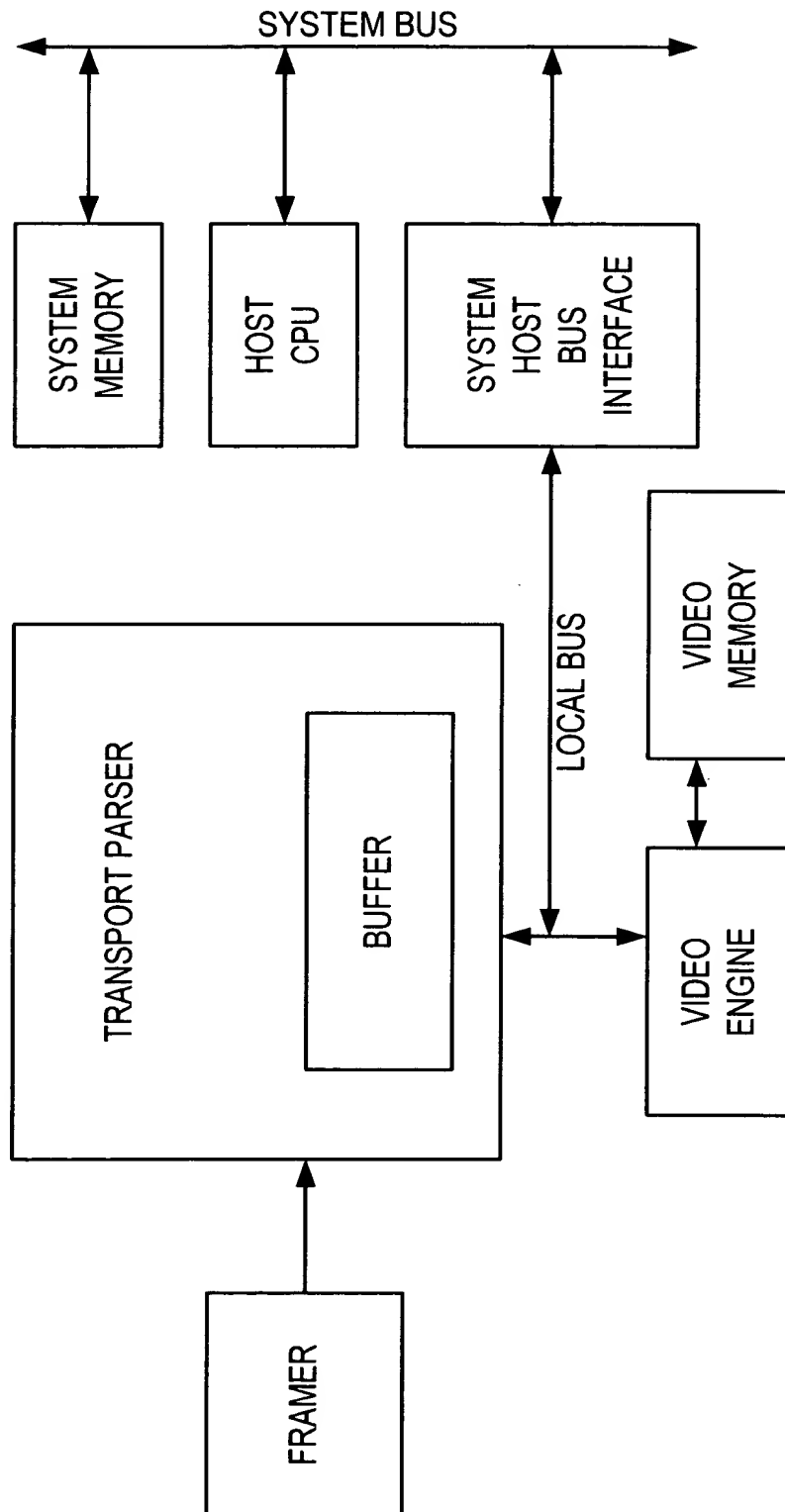Attorney: J. Gustav Larson (512 327-5515

3/39

FIG. 3
--PRIOR ART--

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App. No. 09/491,121
Inventor: Branko Kovacevic et al.
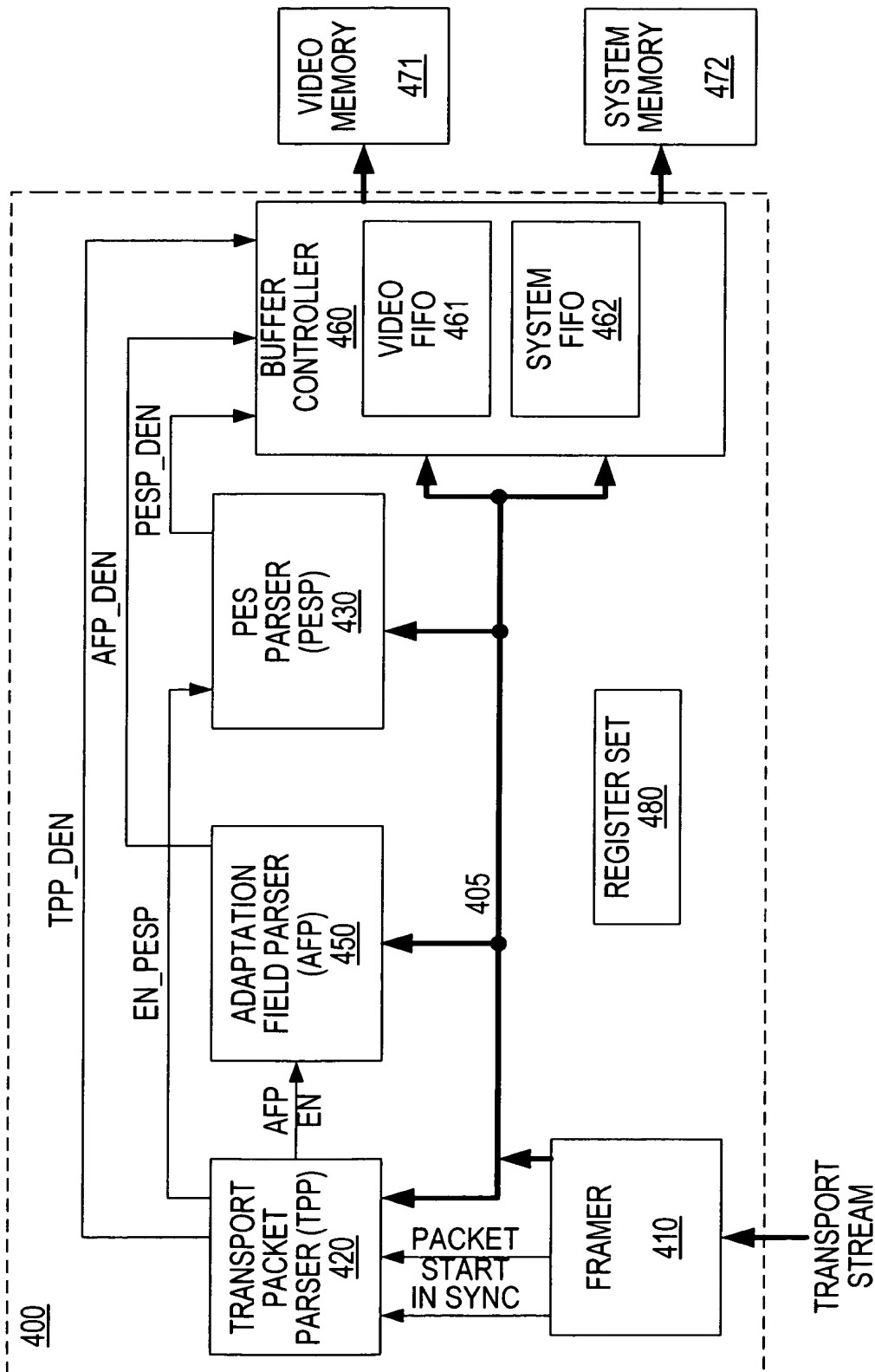Attorney: J. Gustav Larson (512 327-5515

4/39

SYSTEM BUS

SYSTEM MEMORY

HOST CPU

SYSTEM HOST BUS INTERFACE

LOCAL BUS

VIDEO MEMORY

TRANSPORT PARSER

BUFFER

VIDEO ENGINE

FRAMER

FIG. 4
--PRIOR ART--

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5/39

FIG. 5

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Inventor: Branko Kovacevic et al.
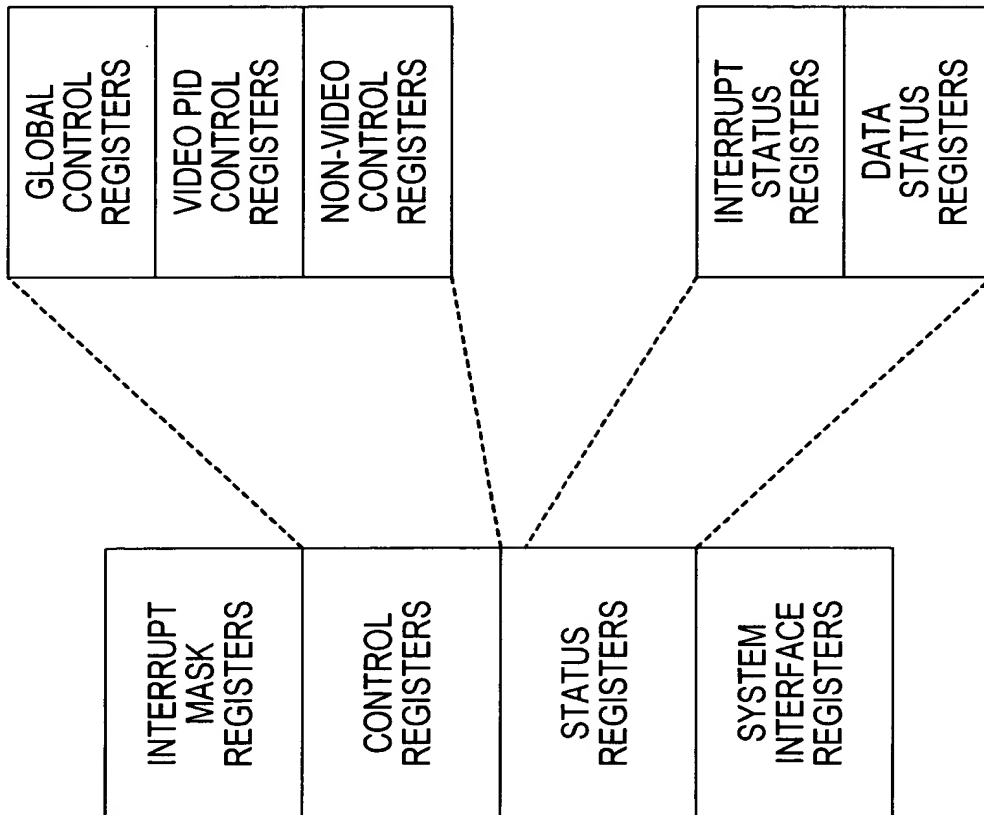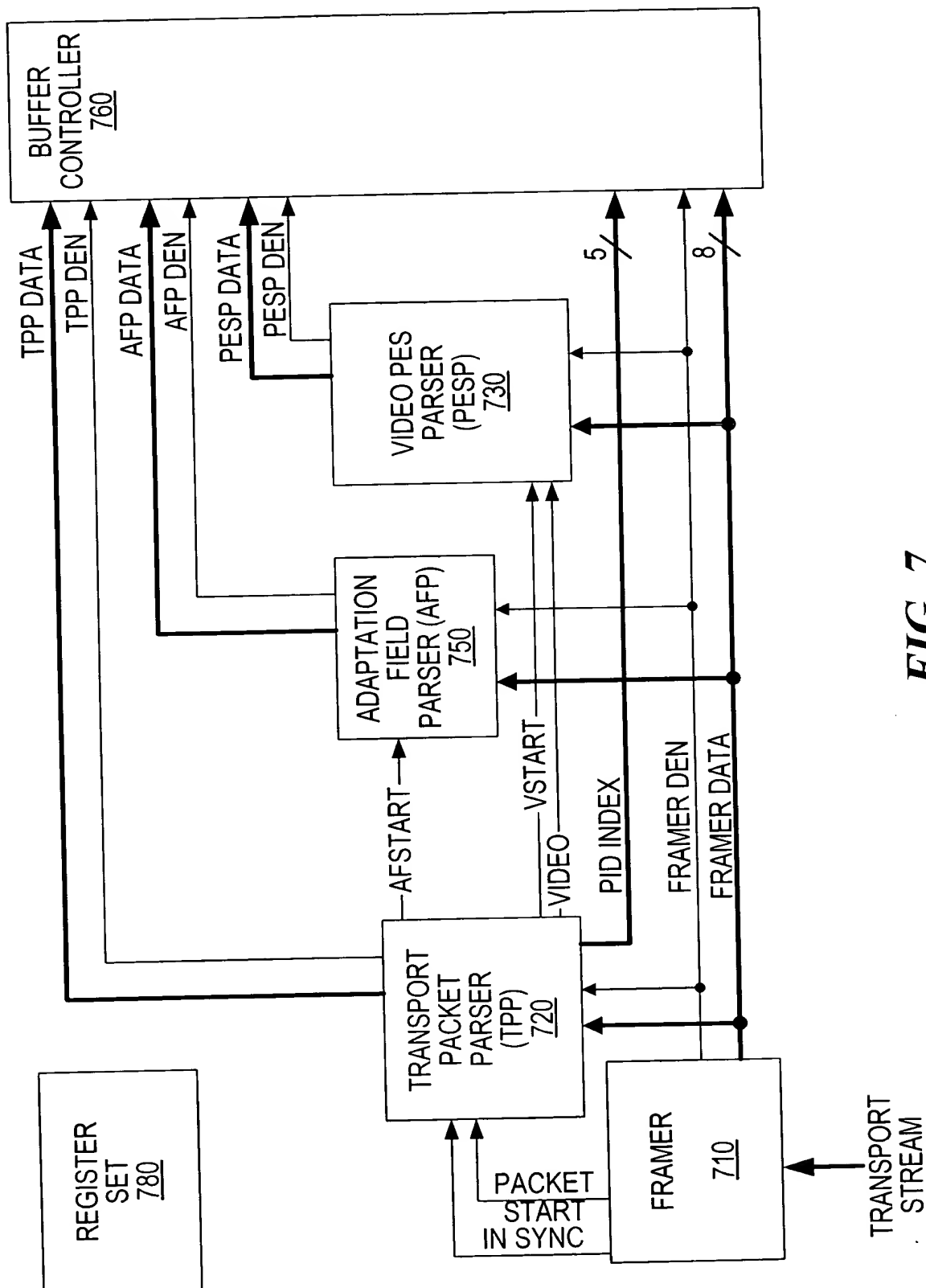Attorney: J. Gustav Larson (512 327-5515

6/39

GLOBAL CONTROL REGISTERS	VIDEO PID CONTROL REGISTERS	NON-VIDEO CONTROL REGISTERS

INTERRUPT STATUS REGISTERS	DATA STATUS REGISTERS

INTERRUPT MASK REGISTERS	CONTROL REGISTERS	STATUS REGISTERS	SYSTEM INTERFACE REGISTERS

480

FIG. 6

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7/39

FIG. 7

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Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515
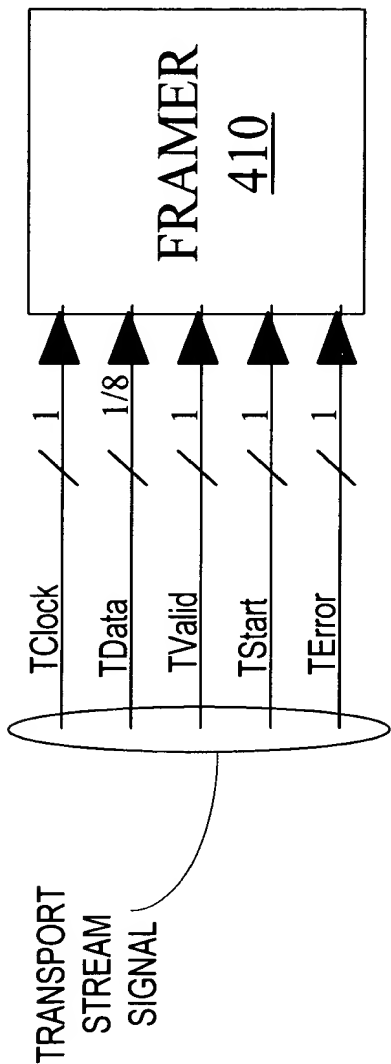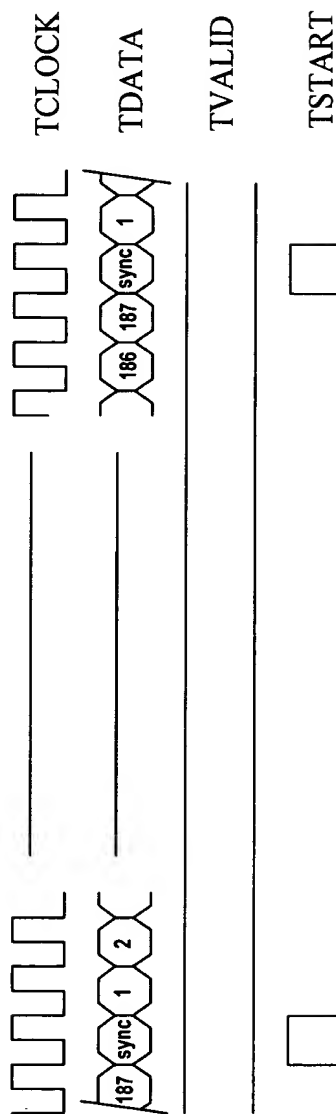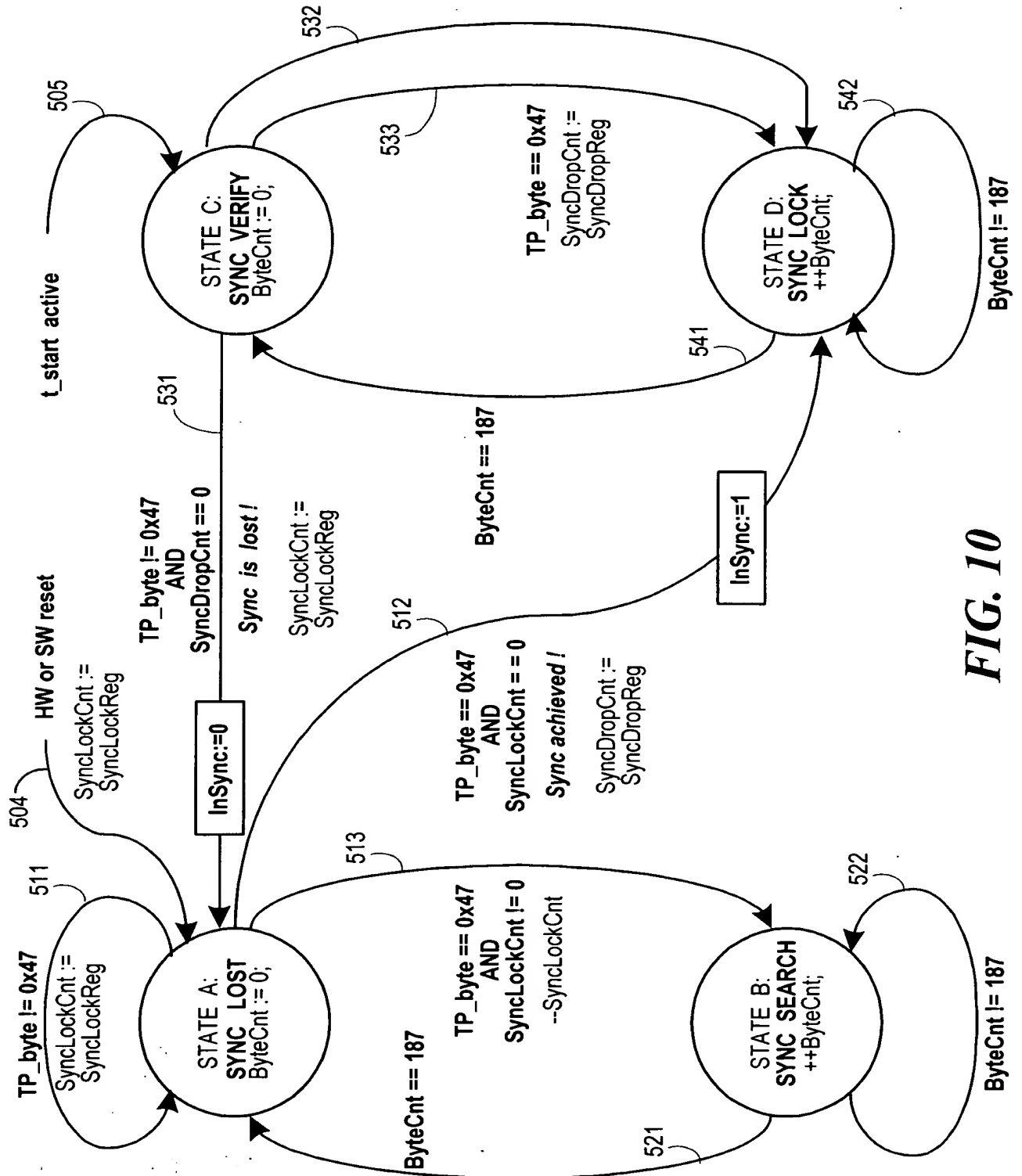
8/39

FIG. 8

FIG. 9

REPLACEMENT DRAWING

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Attorney: J. Gustav Larson (512 327-5515)

9/39

505

t_start active

532

TP_byte != 0x47
AND
SyncDropCnt != 0
--SyncDropCnt

533

542

**STATE C:
SYNC VERIFY**
ByteCnt := 0;

TP_byte == 0x47
SyncDropCnt :=
SyncDropReg

**STATE D:
SYNC LOCK**
++ByteCnt;

531

ByteCnt != 187

541

ByteCnt == 187

TP_byte != 0x47
AND
SyncDropCnt == 0

Sync is lost!

SyncLockCnt :=
SyncLockReg

512

InSync:=1

InSync:=0

HW or SW reset

SyncLockCnt :=
SyncLockReg

504

TP_byte == 0x47
AND
SyncLockCnt == 0

Sync achieved!

SyncDropCnt :=
SyncDropReg

511

TP_byte != 0x47
SyncLockCnt :=
SyncLockReg

513

TP_byte == 0x47
AND
SyncLockCnt != 0
--SyncLockCnt

522

**STATE A:
SYNC LOST**
ByteCnt := 0;

ByteCnt == 187

**STATE B:
SYNC SEARCH**
++ByteCnt;

ByteCnt == 187

521

ByteCnt != 187

FIG. 10

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Inventor: Branko Kovacevic et al.
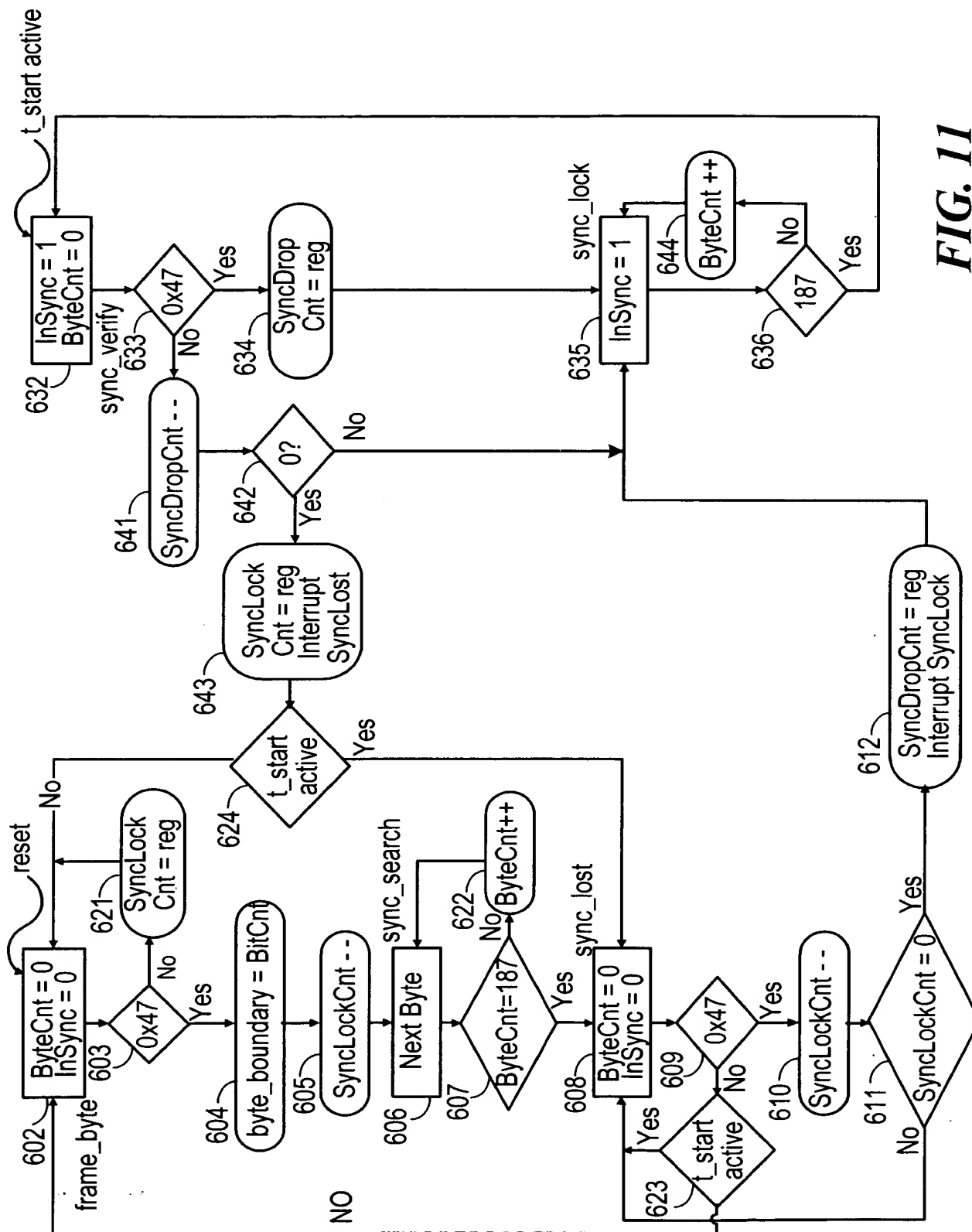Attorney: J. Gustav Larson (512 327-5515

10/39

FIG. 11

REPLACEMENT DRAWING

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Inventor: Branko Kovacevic et al.
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11/39

Transport Demultiplexer Global Status Register

Field Name	Bits	Len	Default	Type	Description
FramerSyncLock	0	[1]	0	R/W	This bit is set to '1' after the frame synchronization has been acquired. **WR_ACC_CLEAR.**
FramerSyncDrop	1	[1]	0	R/W	This bit is set to '1' after the frame synchronization has been lost. **WR_ACC_CLEAR.**
CurrentFramerState	20-22	[3]	'000'	R	This 3 bit field codes the current state of the framer. '000' – Capturing a byte '001' – Out of TP frame synchronization '010' – Searching for synchronization '011' – Checking for synchronization '100' – In the TP frame synchronization NOTE: Only a framer state machine updates this field. Write access does not modify it.
UnusedField	29-31	[3]	'000'	R/W	Unused and reserved field.

FIG. 12

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12/39

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Transport Demultiplexer Interrupt Mask Register

Field Name	Bits	Len	Default	Type	Description
EventInterruptMask	0-18	[19]	0	R/W	If set to '1' enables local sources of interrupts. Bit 0 – FramerSyncLock Bit 1 – FramerSyncDrop Bits 2 – 19 Other Functionality
EnableGlobalDemuxInterrupt	20	[1]	0	R/W	If set to '1' enables globally TD core interrupts.
UnusedField	21-31	[11]	0	R/W	Unused and reserved field. Always set to 0.

FIG. 13

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13/39

Transport Demultiplexer Global Control Register

Field Name	Bits	Len	Default	Type	Description
FramerSyncLockLength	0-4	[5]	00101	R/W	Five bits field to select a number of consecutive transport packets after MPEG-2 frame (bit-stream) synchronization is declared.
FramerSyncDropLength	5-7	[3]	011	R/W	Three bits field to select a number of consecutive transport packets after a loss of MPEG-2 frame synchronization is declared.
FramerBitPolarity	8	[1]	0	R/W	'0' selects msb first (default mode), '1' select lsb first
FramerClockPolarity	9	[1]	0	R/W	If set to '0' framer will latch on falling edge (default) If set to '1' framer will latch on rising edge.
FramerMode:	10-11	[2]	'00'	R/W	Defines a combination of external control signals: '00' – Framer uses T_start only. '01' – Framer uses T_valid only. '10' – Framer uses T_start and T_valid. '11' – Framer uses T_clock and T_data only.
Other Functionality Bits	12-15	[4]			Other functionality (not relevant to Framer)
T_ValidPolarity	16	[1]	1	R/W	'1' selects active high [5V] for t_valid external signal
T_StartPolarity	17	[1]	1	R/W	'1' selects active high [5V] for t_start external signal
T_ErrorPolarity	18	[1]	1	R/W	'1' selects active high [5V] for t_error external signal
Other Functionality Bits	19-28	[10]			Other functionality (not relevant to Framer)
UnusedField	29-31	[3]	0	R/W	Unused and reserved field. Always set to 0.

FIG. 14

REPLACEMENT DRAWING

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Inventor: Branko Kovacevic et al.
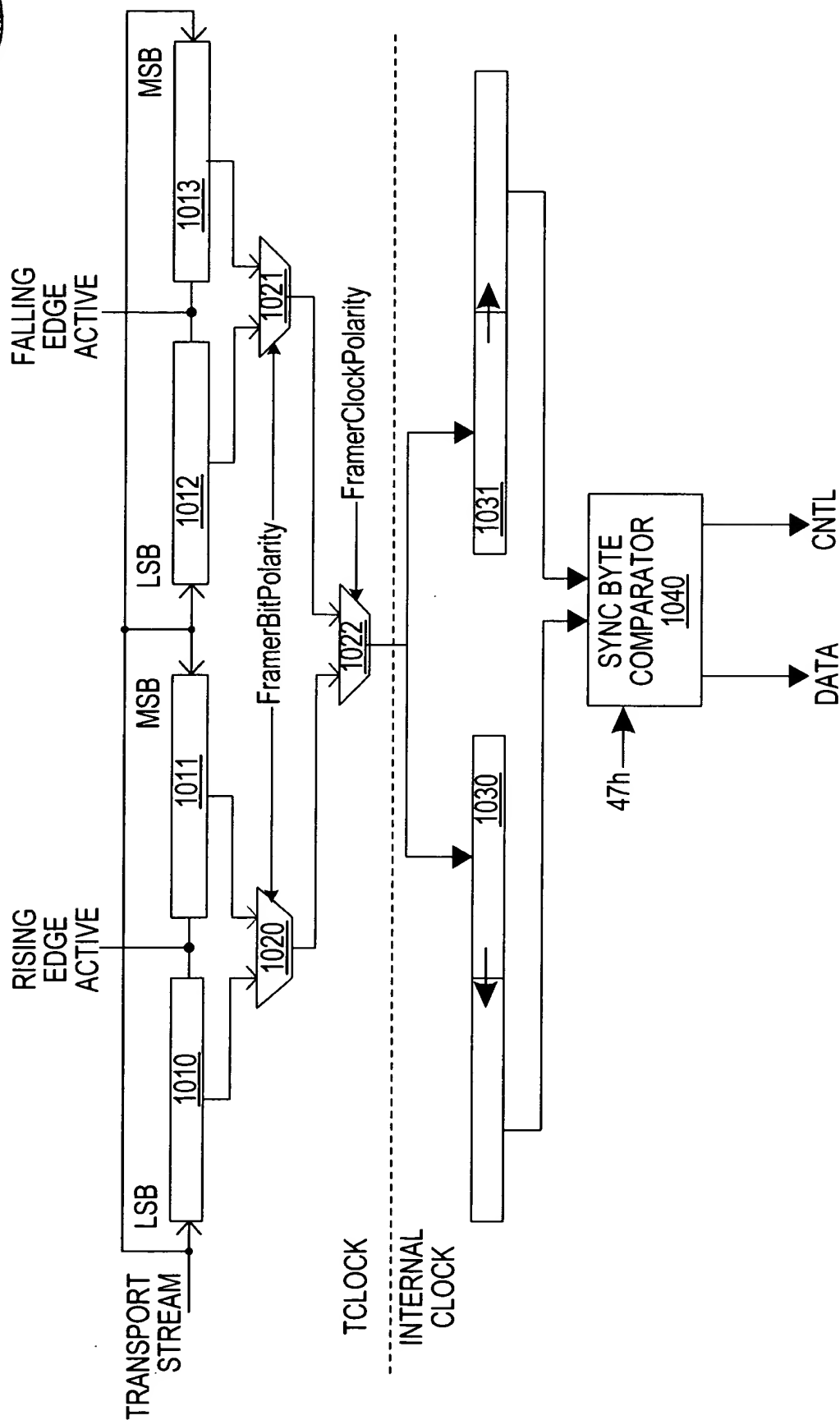Attorney: J. Gustav Larson (512 327-5515

14/39

FIG. 15

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
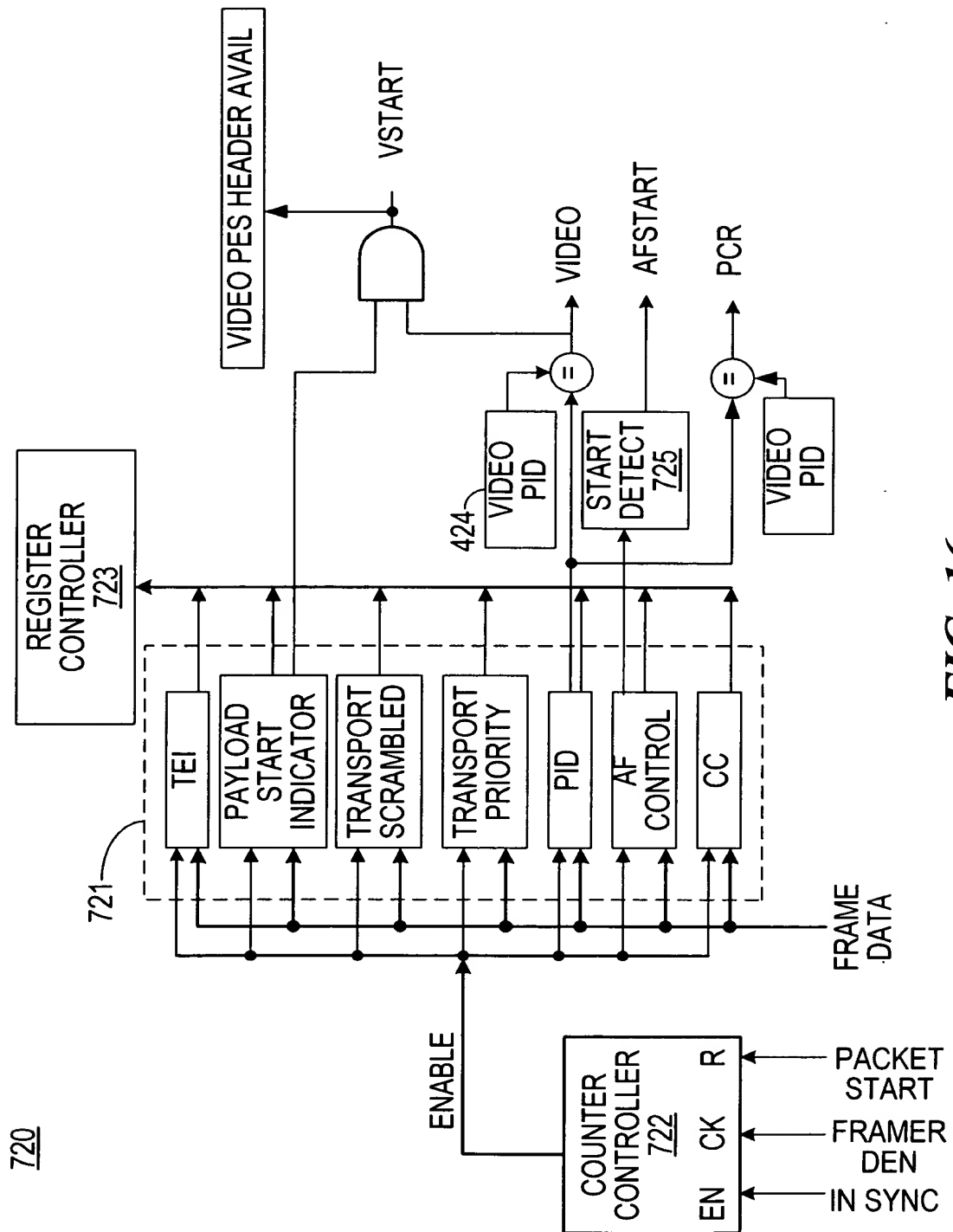Attorney: J. Gustav Larson (512 327-5515

15/39

FIG. 16

REPLACEMENT
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App. No. 09/491,121
Inventor: Branko Kovacevic et al.
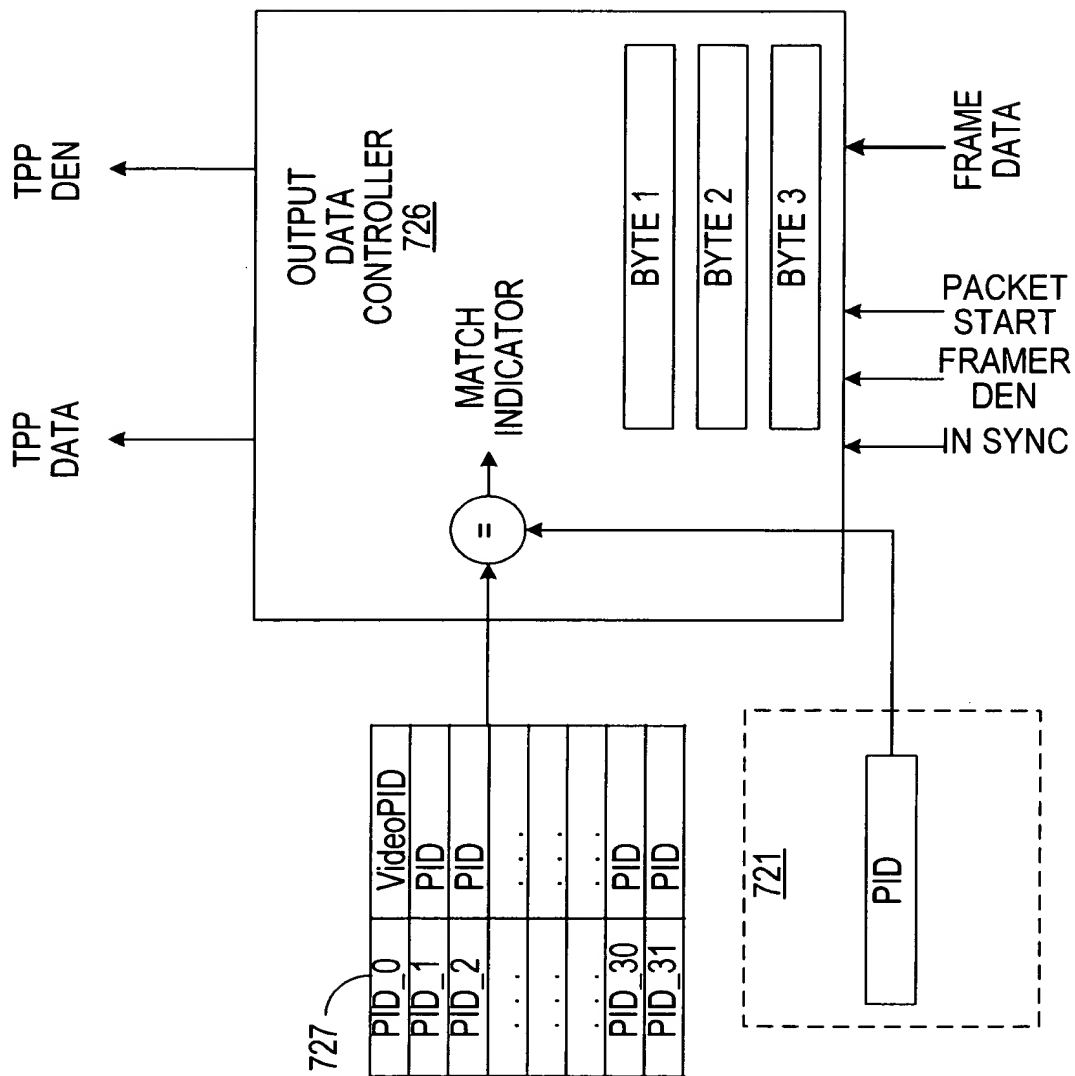Attorney: J. Gustav Larson (512 327-5515

16/39

FIG. 17

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
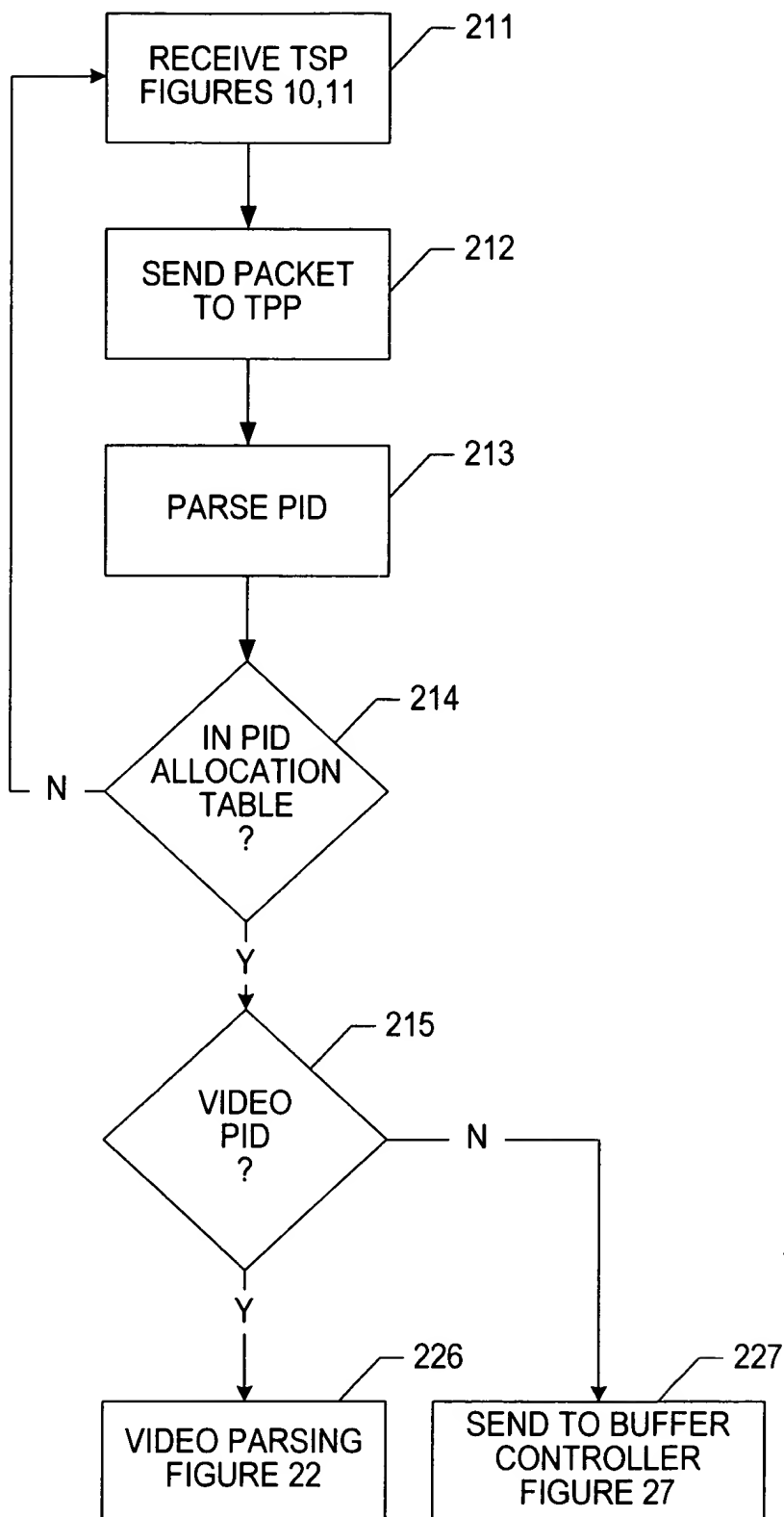Attorney: J. Gustav Larson (512 327-5515

17/39

Video Control Registers

Field Name	Bits	Len	Default	Type	Description
VideoPid	0-12	[13]	0x1FFF	R/W	Selects a specific PID of the video component stream to filter on. Value of 4095 is reserved one (it means a NULL transport packets).
EnableParsing	13	[1]	0	R/W	If '1' enables parsing from the next transport packet.
StartFromPUSICommand	14	[1]	0	R/W	'0' enables PES parsing immediately. '1' enables PES parsing a transport packet from new PES packet. After that, this bit auto-returns to 0.
ProcessStreamID	15	[1]	0	R/W	If '1' enables parsing on specific stream_id field.
StreamID	16-23	[8]	0xE0	R/W	stream_id of the ES stream to filter on in the PESP.

FIG. 18

Transport Demultiplexer Registers

Field Name	Bits	Len	Default	Type	Description
PID_yz, 0 ≤ yz ≤ 30	0-12	[13]	0x1FFF	R/W	Selects a specific PID of the component stream to filter on. Value of 0x1FFF is reserved (it means a NULL transport packets).
EnableParsing	13	[1]	0	R/W	If set to '1' extraction of defined PID_yz is enabled.
BufferIndex	14-17	[4]	0	R/W	Specifies 1 of 16 destination buffers in the sys. mem.

FIG. 19

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18/39

```
          ┌─────────────────┐
          │  RECEIVE TSP    │──── 211
     ┌───▶│  FIGURES 10,11  │
     │    └─────────────────┘
     │             │
     │             ▼
     │    ┌─────────────────┐
     │    │  SEND PACKET    │──── 212
     │    │  TO TPP         │
     │    └─────────────────┘
     │             │
     │             ▼
     │    ┌─────────────────┐
     │    │  PARSE PID      │──── 213
     │    └─────────────────┘
     │             │
     │             ▼
     │          ◇ IN PID ◇
     │    N    ◇ ALLOCATION ◇──── 214
     └─────────◇  TABLE  ◇
               ◇   ?   ◇
                   │ Y
                   ▼
               ◇ VIDEO ◇
               ◇  PID  ◇──── 215        N
               ◇   ?  ◇─────────────────┐
                   │ Y                   │
                   ▼                     ▼
        ┌─────────────────┐   ┌─────────────────┐
        │ VIDEO PARSING   │   │ SEND TO BUFFER  │
        │ FIGURE 22       │   │ CONTROLLER      │
        │         ──226   │   │ FIGURE 27 ──227 │
        └─────────────────┘   └─────────────────┘
```
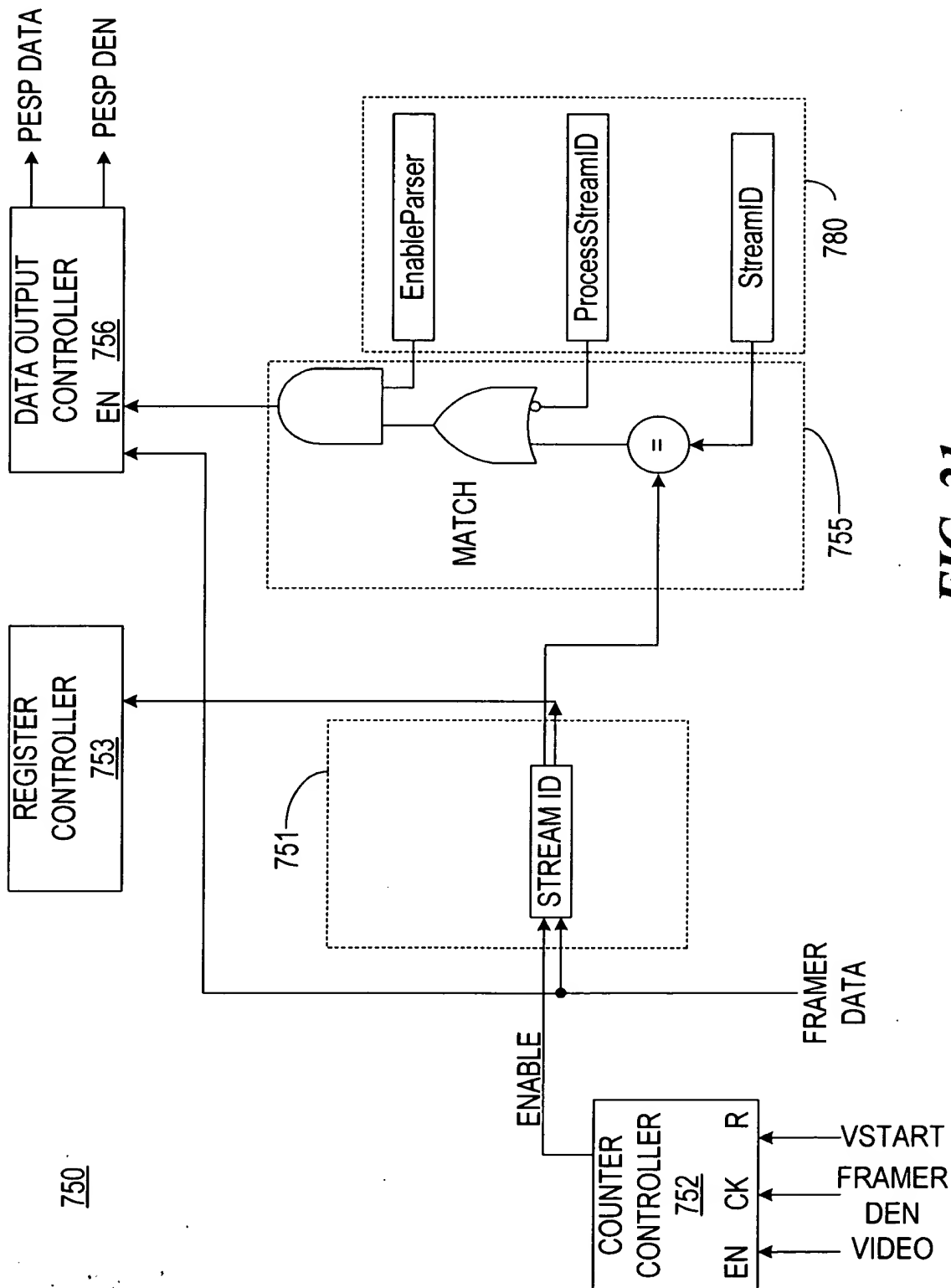
FIG. 20

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19/39

FIG. 21

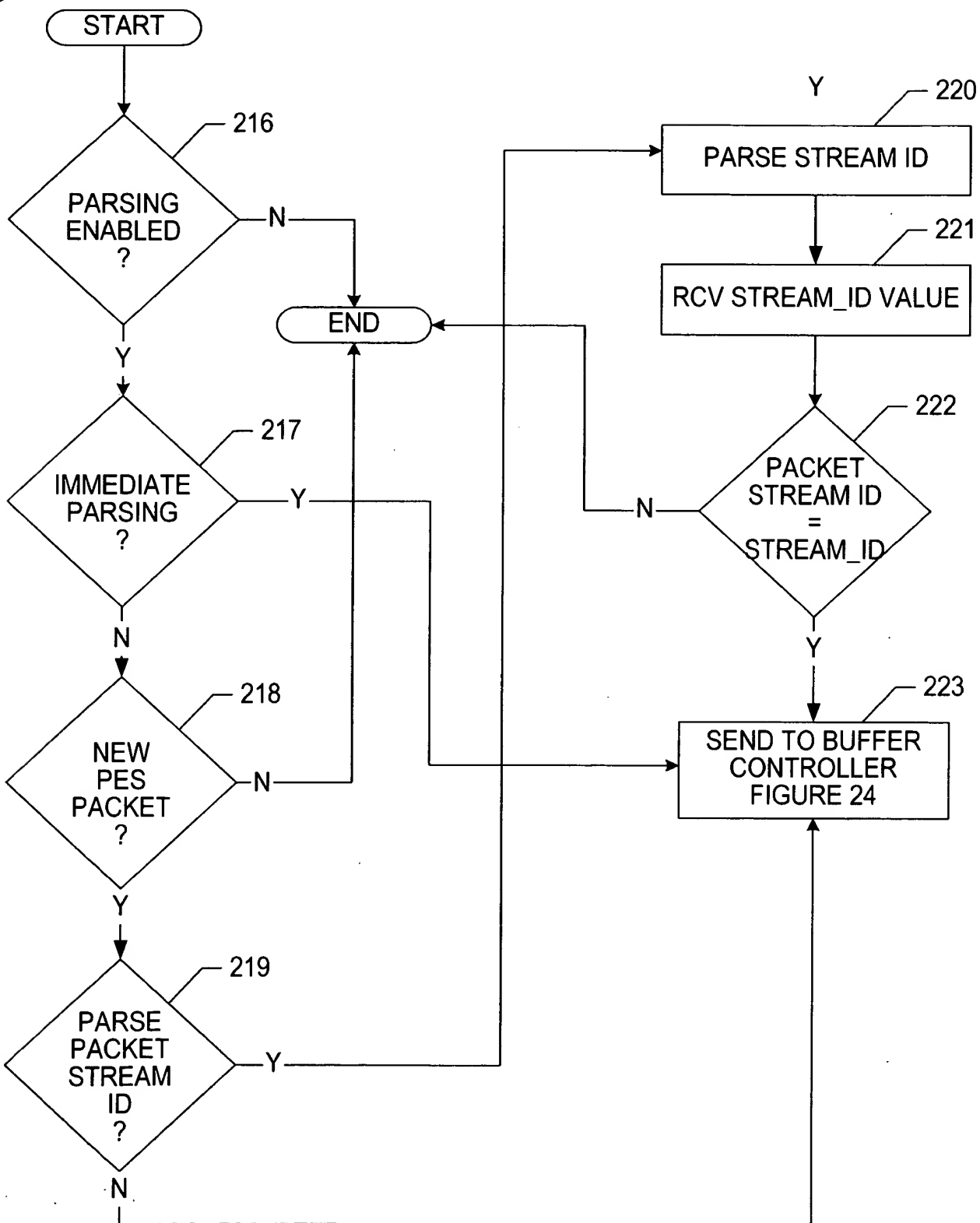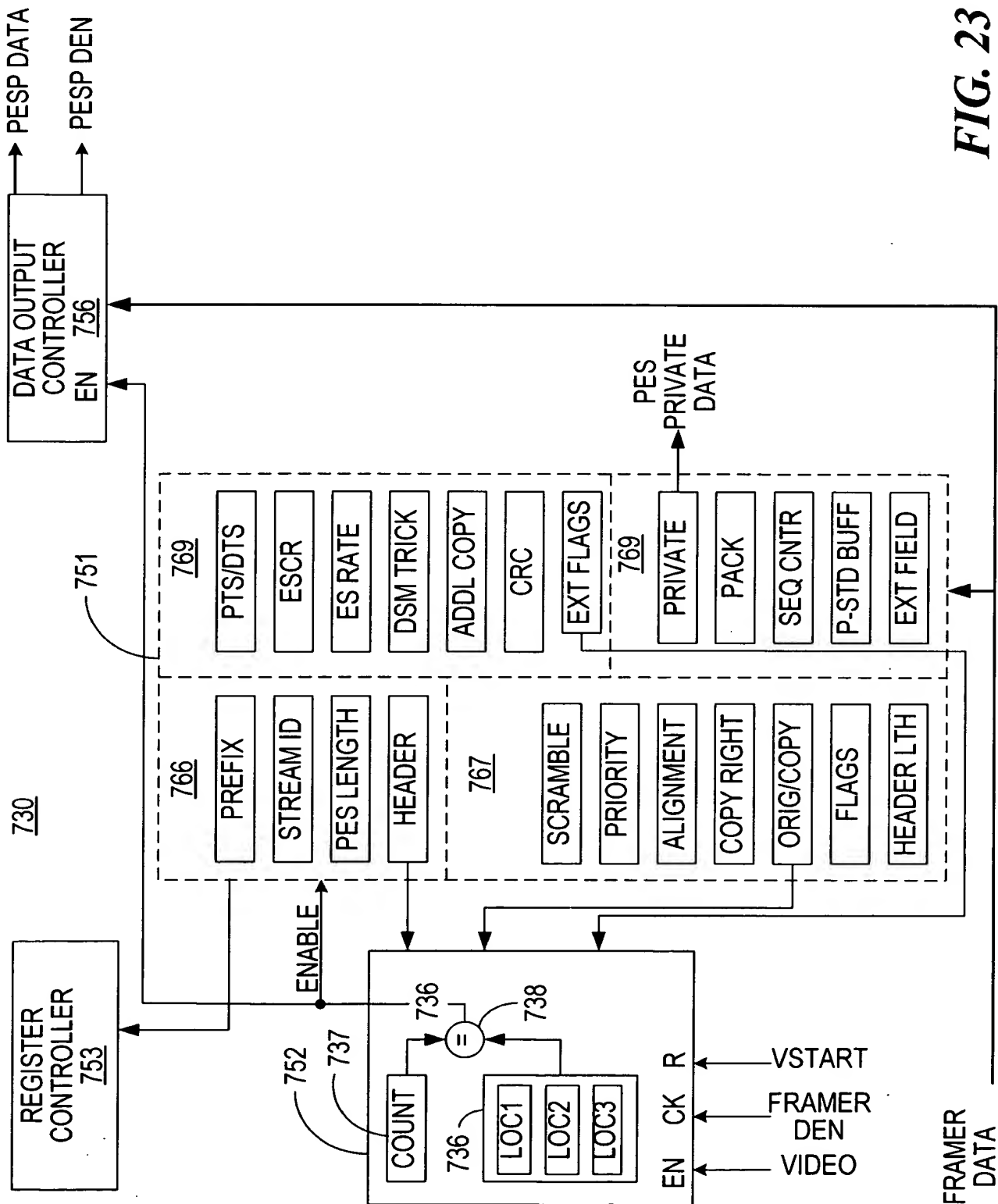REPLACEMENT
DRAWING

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20/39

START

216
PARSING
ENABLED
?

N → END

Y

217
IMMEDIATE
PARSING
?

Y

N

218
NEW
PES
PACKET
?

N

Y

219
PARSE
PACKET
STREAM
ID
?

Y

N

Y 220
PARSE STREAM ID

221
RCV STREAM_ID VALUE

222
PACKET
STREAM ID
=
STREAM_ID

N

Y

223
SEND TO BUFFER
CONTROLLER
FIGURE 24

FIG. 22

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21/39

FIG. 23

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22/39

FIG. 24

Transport Demultiplexer Global Status Register

| Field Name	Bits	Len	Default	Type	Description
VideoPESHeaderAvailable	12	[1]	0	R/W	This bit is set to '1' when the new PES header of the video stream is received. **WR_ACC_CLEAR.**
VideoPESHeaderError	13	[1]	0	R/W	This bit is set to '1' after an error in the PES header is found. **WR_ACC_CLEAR.**
VideoPESDataAlignment	14	[1]	0	R/W	This bit is set to '1' when video PID has AF *data_alignment_flag*, indicating a possible start of I frame. **WR_ACC_CLEAR.**
VideoPESDSMTrickMode	15	[1]	0	R/W	Indicates that DSM data is found and extracted. **WR_ACC_CLEAR.**
VideoPESPrivateData	16	[1]	0	R/W	This bit is set to '1' when video PID has 16 bytes of private data in the PES header. **WR_ACC_CLEAR.**
VideoPESCRCError	17	[1]	0	R/W	This bit is set to '1' if the video CRC of the PESP parser found a CRC mismatch. **WR_ACC_CLEAR.**

FIG. 25

Transport Demultiplexer Interrupt Mask Register

| Field Name	Bits	Len	Default	Type	Description
EventInterruptMask	0-18	[19]	0	R/W	If set to '1' enables local sources Bit 12 – VideoPESHeaderAvailable Bit 13 – VideoPESHeaderError Bit 14 – VideoPESDataAlignment Bit 15 – VideoPESDSMTrickMode Bit 16 – VideoPESPrivateData Bit 17 – VideoPESCRCError Bit 18 – VideoPTSReceived Bit 19 – VideoESCRReceived

23/39

FIG. 26

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24/39

START

DATA IN FIFO ? — NO — 801

YES

IDENTIFY BUFFER — 810

BUFFER FULL ? — 802

WAIT — YES — 811

NO

REQUEST BUS — 803

WRITE NEXT DATA BLOCK TO BUFFER — 804

RELEASE BUS — 807

MORE DATA ? — NO — 805

YES

BUFFER FULL ? — 806

YES — NO

FIG. 27

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25/39
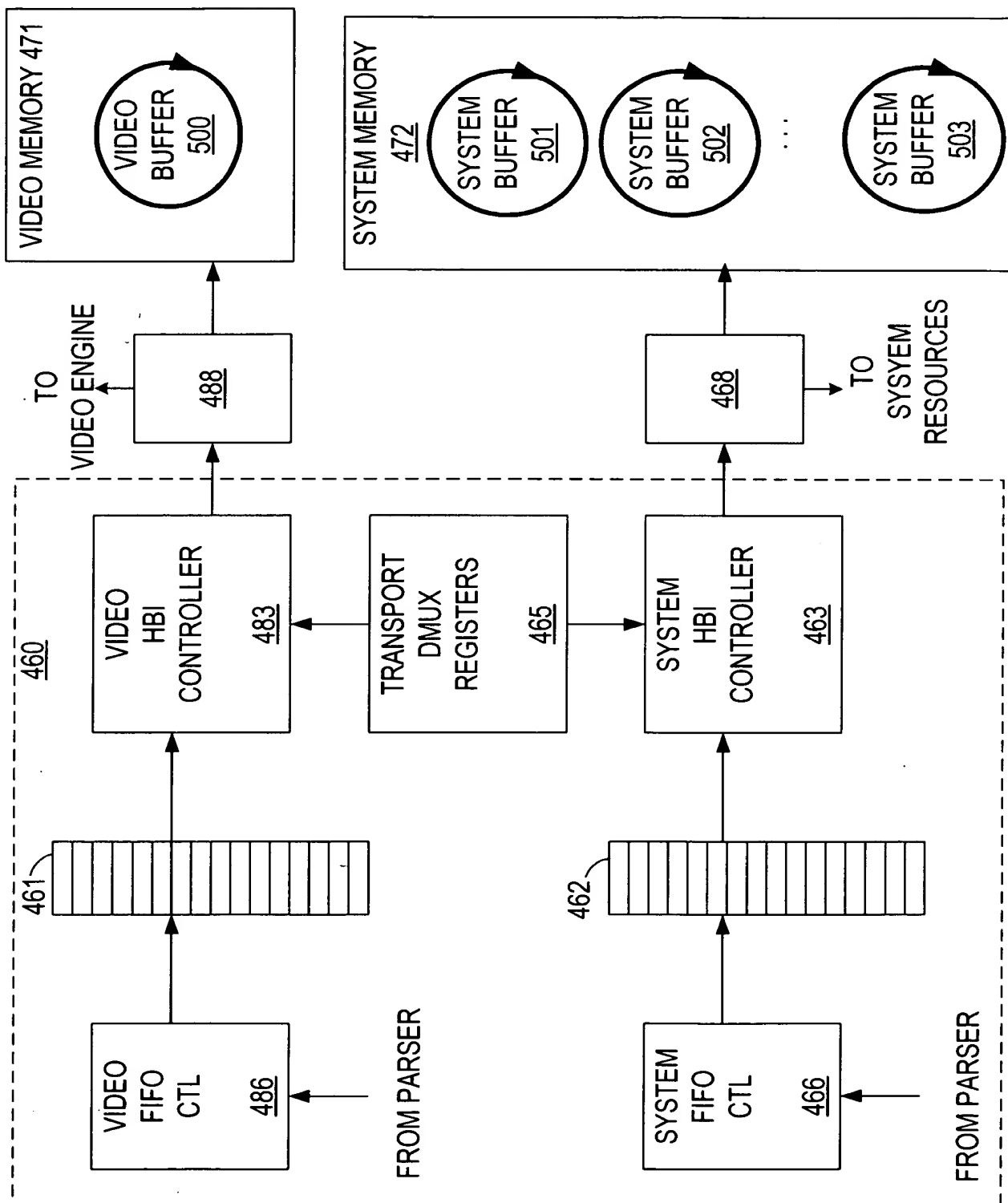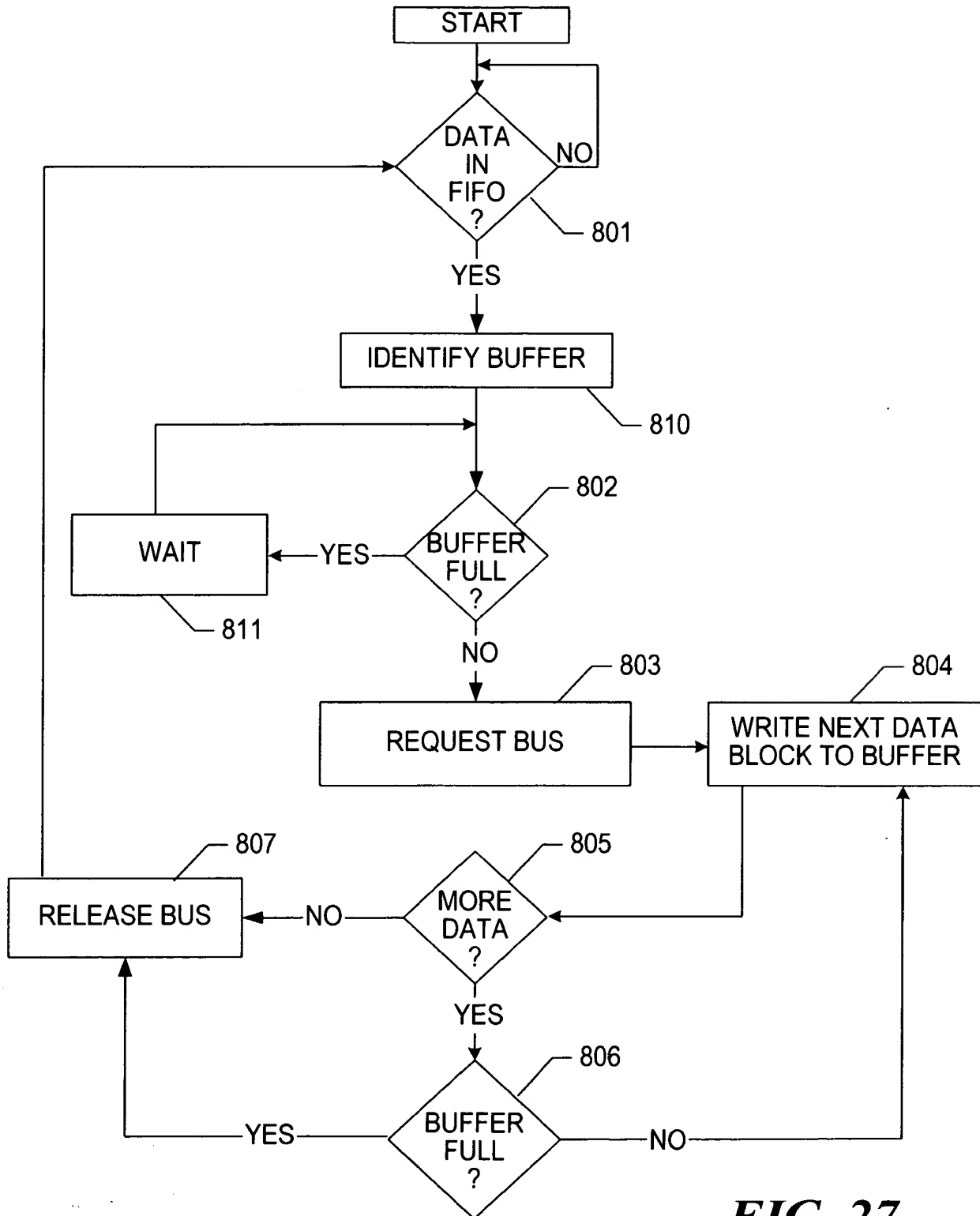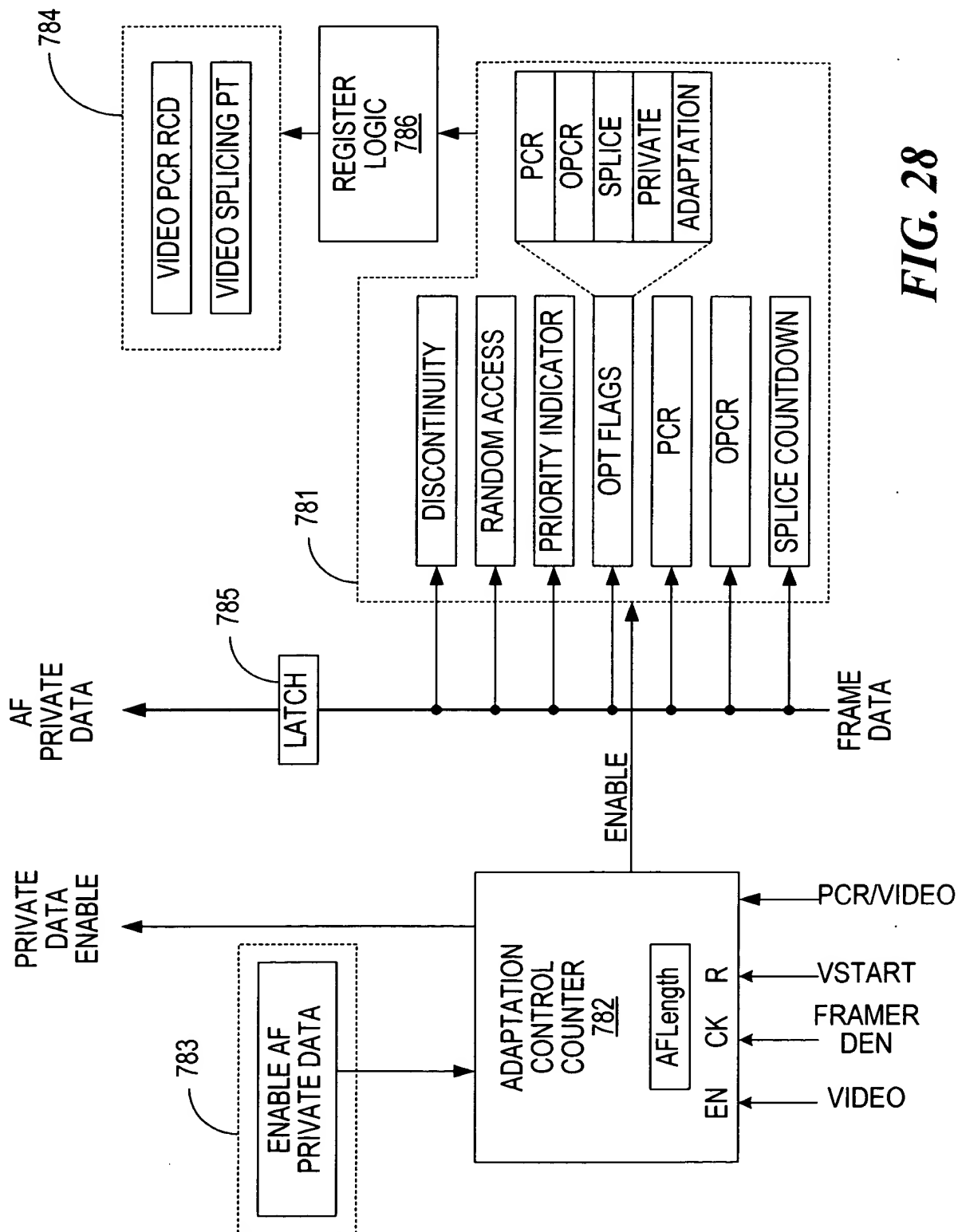
FIG. 28

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Attorney: J. Gustav Larson (512 327-5515

26/39

Transport Demultiplexer Global Status Register

Field Name	Bits Len	Default	Type	Description
VideoAFPcrReceived	[1]	0	R/W	This bit is set to '1' after arrival and extraction of PCR sample in the adaptation field. **WR_ACC_CLEAR.**
VideoAFPcrDiscontinuity	[1]	0	R/W	This bit is set to '1' when a discontinuity_indicator in The adaptation field of the PCR PID is asserted. **WR_ACC_CLEAR.**
VideoAFDiscontinuityFlag	[1]	0	R/W	This bit is set to '1' after a discontinuity_indicator_flag has been asserted in the AF of video TP, indicating a discontinuity on continuity_counter. **WR_ACC_CLEAR.**
VideoAFRandomAccess	[1]	0	R/W	This bit is set to '1' when video PID has random_access_flag asserted in the AF, indicating a start of the elementary stream. **WR_ACC_CLEAR.**
VideoAFSplicingFlag	[1]	0	R/W	This bit is set to '1' when video PID has splicing_point_flag asserted in the AF, indicating approaching of the splicing point. **WR_ACC_CLEAR.**
VideoAFSplicingPoint	[1]	0	R/W	This bit is set to '1' when video PID has splicing_point_flag asserted in the AF, after splicing point occurred (splice_countdown =0). **WR_ACC_CLEAR.**
VideoAFPrivateData	[1]	0	R/W	This bit is set to '1' when video has AF private data. **WR_ACC_CLEAR.**
AFSpliceCountdown	[8]	0x00	R/W	Current splice countdown value from adaptation field of A/V packets. Modified on the fly by AF content

FIG. 29

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27/39

Transport Demultiplexer Interrupt Mask Register

Field Name	Bits	Len	Default	Type	Description
EventInterruptMask	0-18	[19]	0	R/W	If set to '1' enables local sources Bit 5 – VideoAFPcrReceived Bit 6 – VideoAFPcrDiscontinuity Bit 7 – VideoAFDiscontinuityFlag Bit 8 – VideoAFRandomAccessFlag Bit 9 – VideoAFSplicingFlag Bit 10 – VideoAFSplicingPoint Bit 11 – VideoAFPrivateData

FIG. 30

Transport Demultiplexer Global Control Register

Field Name	Bits	Len	Default	Type	Description
EnableAFPrivateData	[1]		0	R/W	If '1' enables parsing and routing of AF private data
AFPrivateDataBufferIndex	[4]		0	R/W	Specifies 1 of 15 destination buffers in the system memory
PCRIndex	[1]		0	R/W	
EnableAutoSplicing	[1]		0	R/W	

FIG. 31

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28/39

FIG. 32

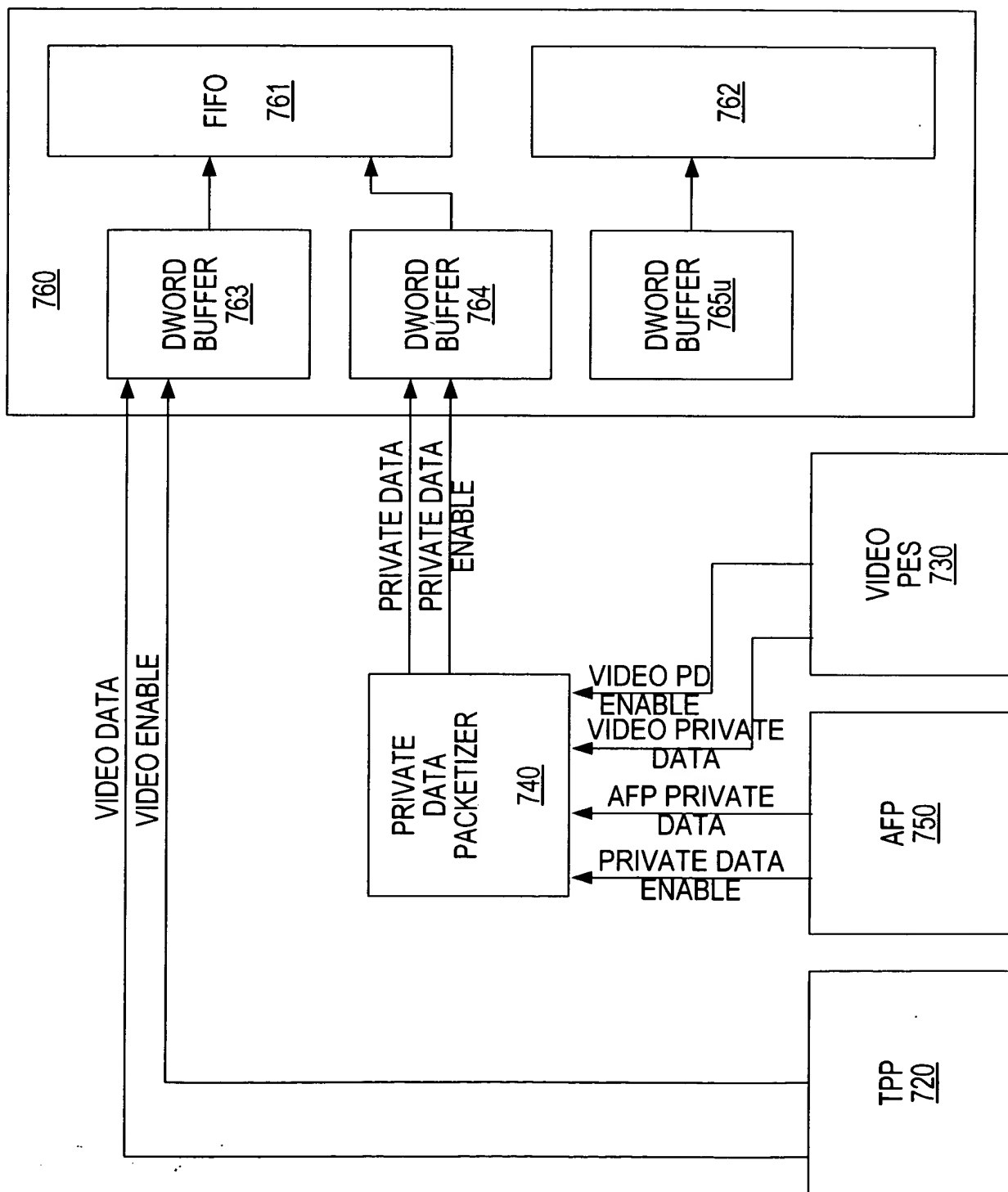**REPLACEMENT DRAWING**

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29/39

FIG. 33

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30/39

771

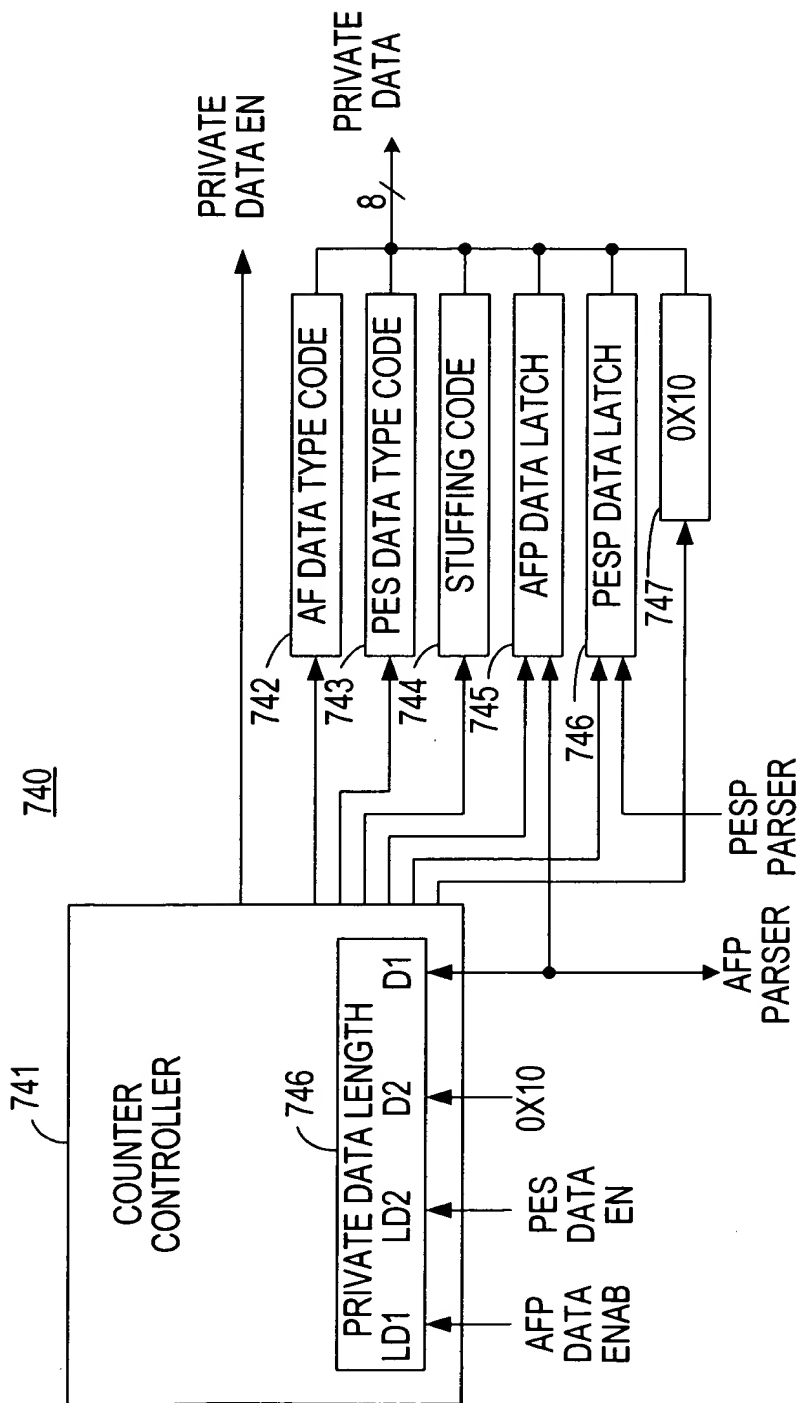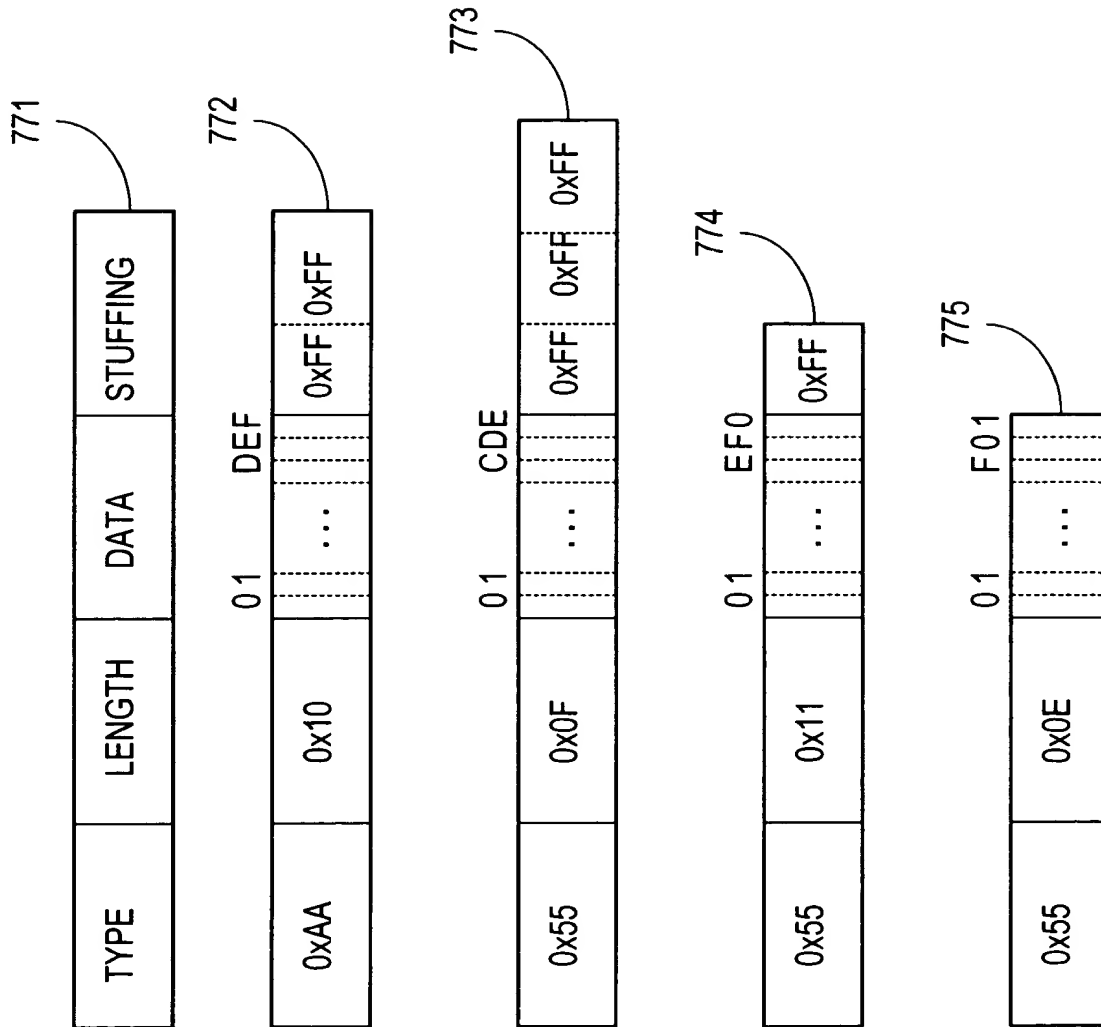| TYPE	LENGTH	DATA	STUFFING

772

0xAA	0x10	01 ... DEF	0xFF 0xFF

773

0x55	0x0F	01 ... CDE	0xFF 0xFF 0xFF

774

0x55	0x11	01 ... EF0	0xFF

775

0x55	0x0E	01 ... F01	

FIG. 34

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Attorney: J. Gustav Larson (512 327-5515 ●

31/39

ENABLE RECEPTION OF
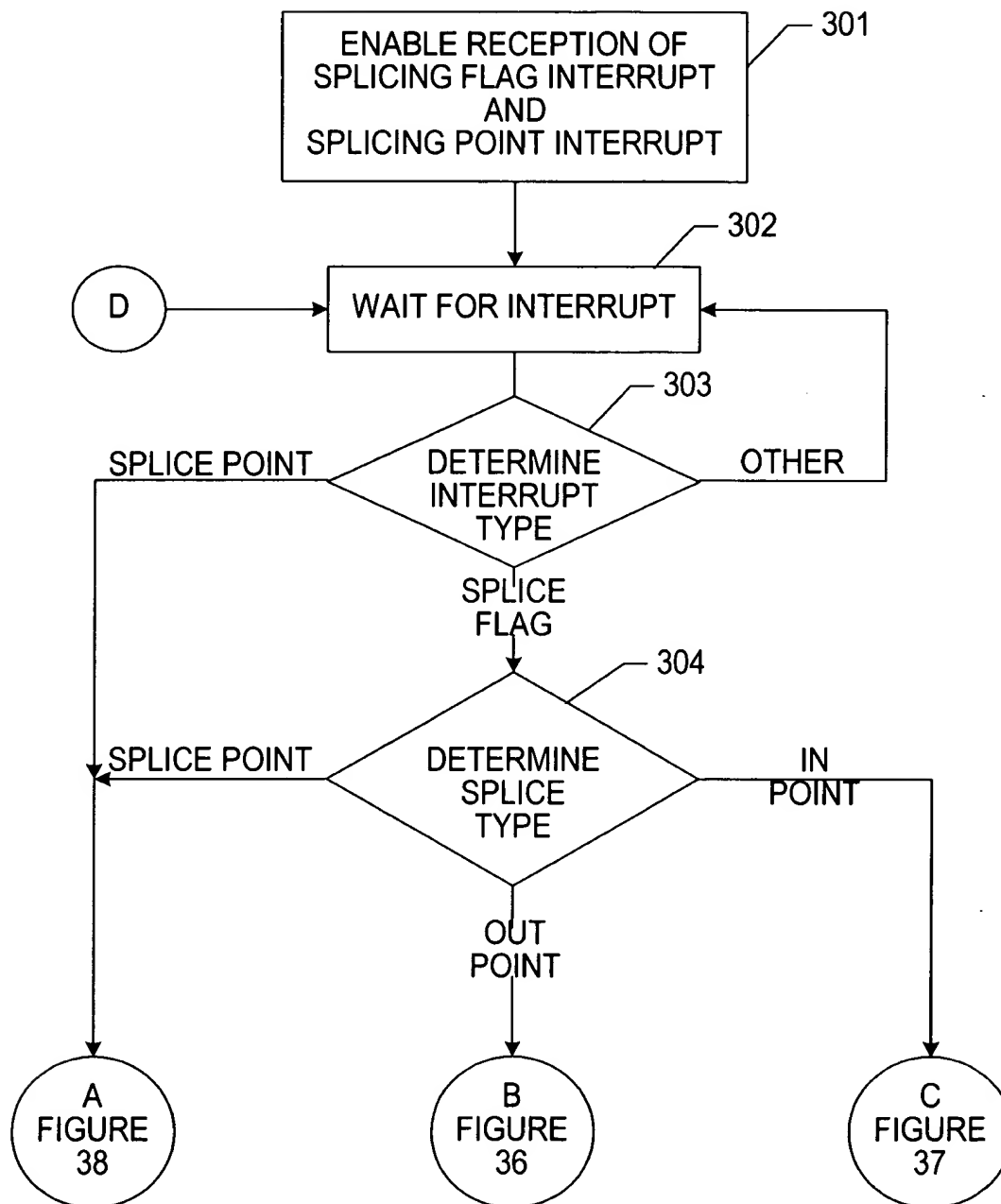SPLICING FLAG INTERRUPT
AND
SPLICING POINT INTERRUPT — 301

D → WAIT FOR INTERRUPT — 302

SPLICE POINT ← DETERMINE INTERRUPT TYPE — 303 → OTHER

SPLICE FLAG

SPLICE POINT ← DETERMINE SPLICE TYPE — 304 → IN POINT

OUT POINT

A FIGURE 38

B FIGURE 36

C FIGURE 37

FIG. 35

FIG. 36

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
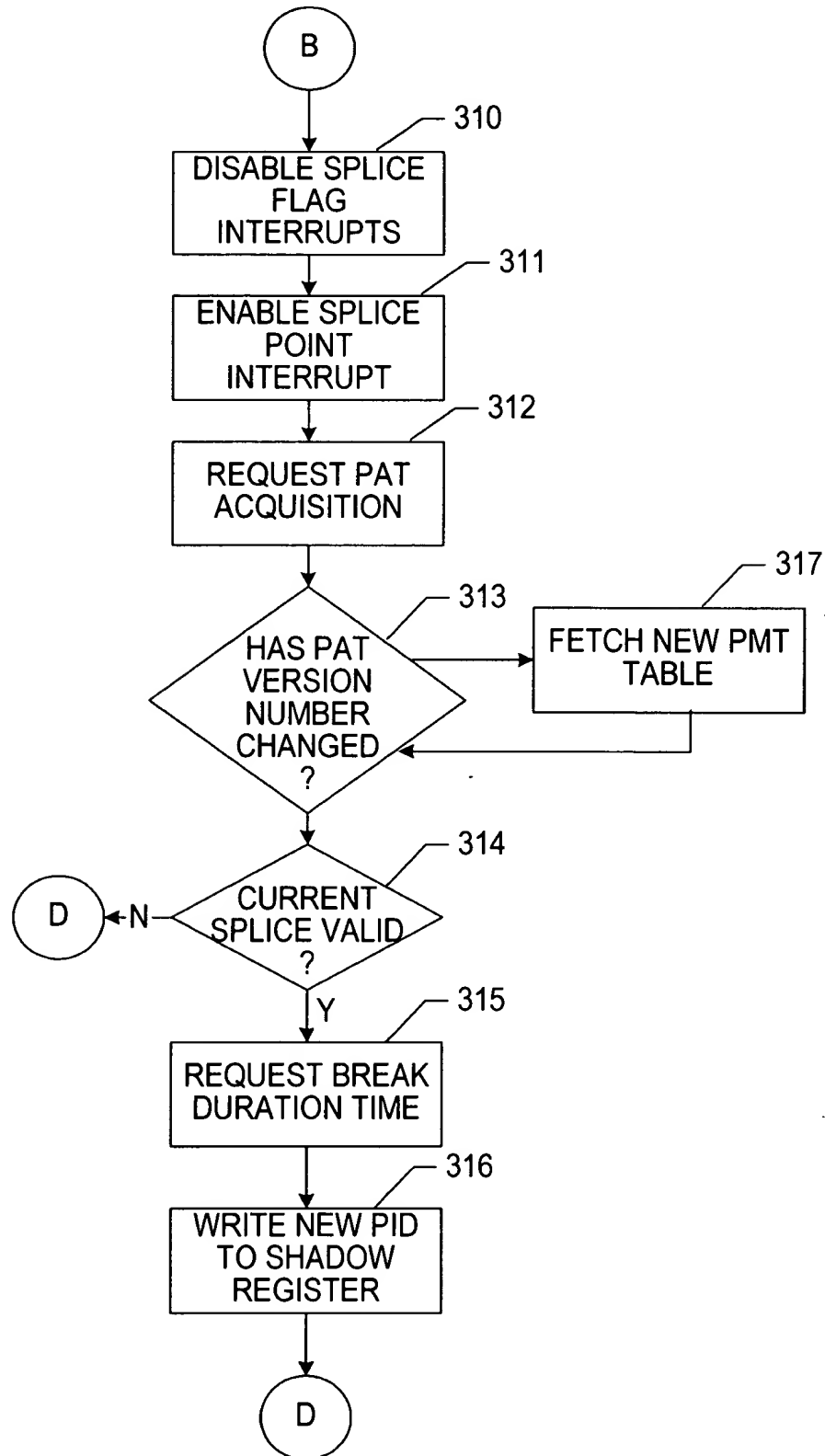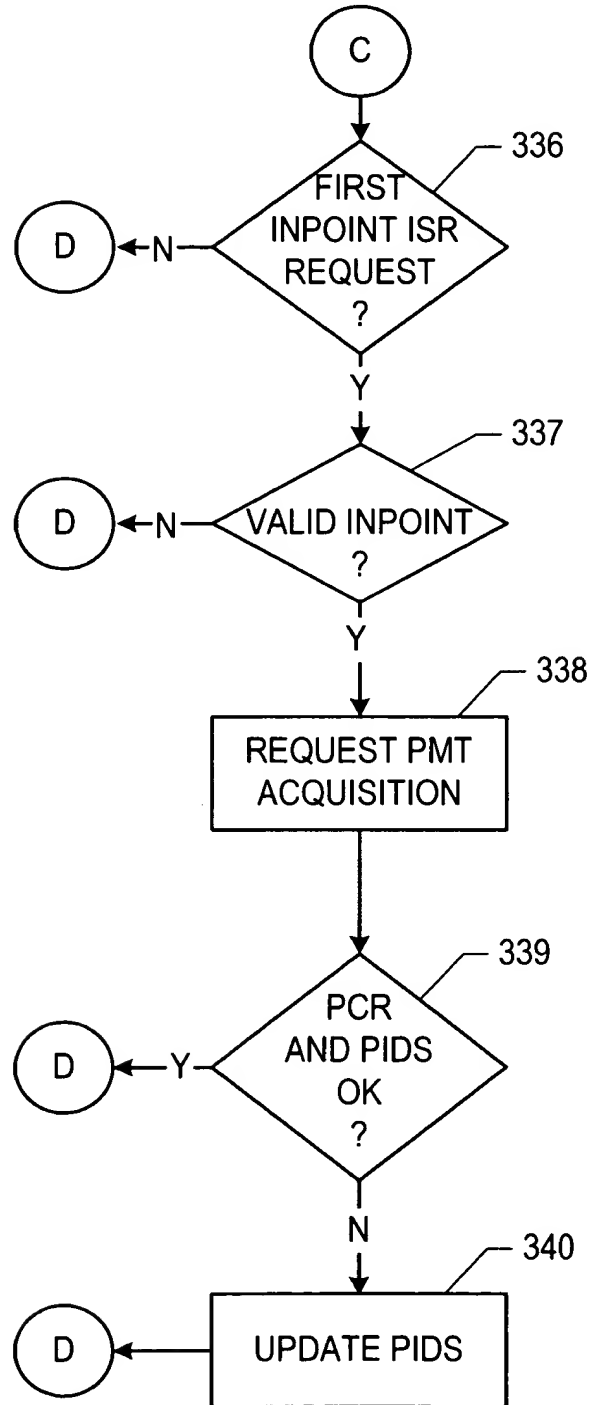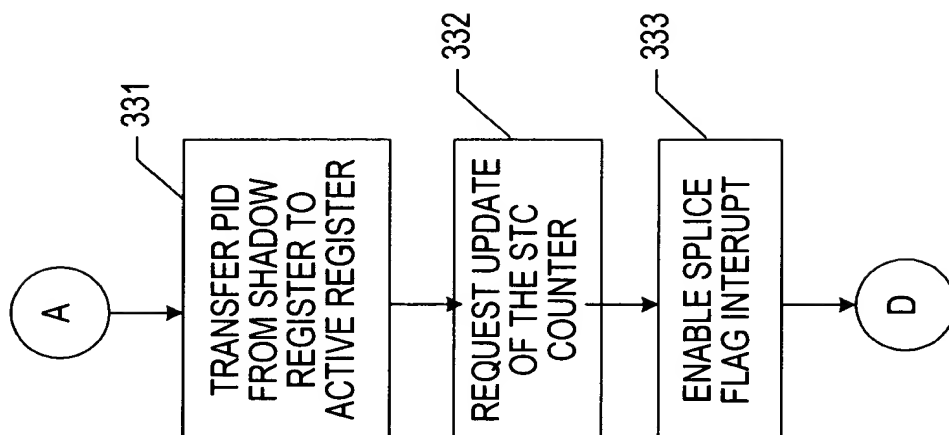Attorney: J. Gustav Larson (512 327-5515)

33/39

C

336
FIRST
INPOINT ISR —N→ D
REQUEST
?

Y

337
VALID INPOINT —N→ D
?

Y

338
REQUEST PMT
ACQUISITION

339
PCR
AND PIDS —Y→ D
OK
?

N

340
UPDATE PIDS →← D

FIG. 37

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Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

34/39

A →

331

TRANSFER PID
FROM SHADOW
REGISTER TO
ACTIVE REGISTER

→

332

REQUEST UPDATE
OF THE STC
COUNTER

→

333

ENABLE SPLICE
FLAG INTERUPT

→ D

FIG. 38

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

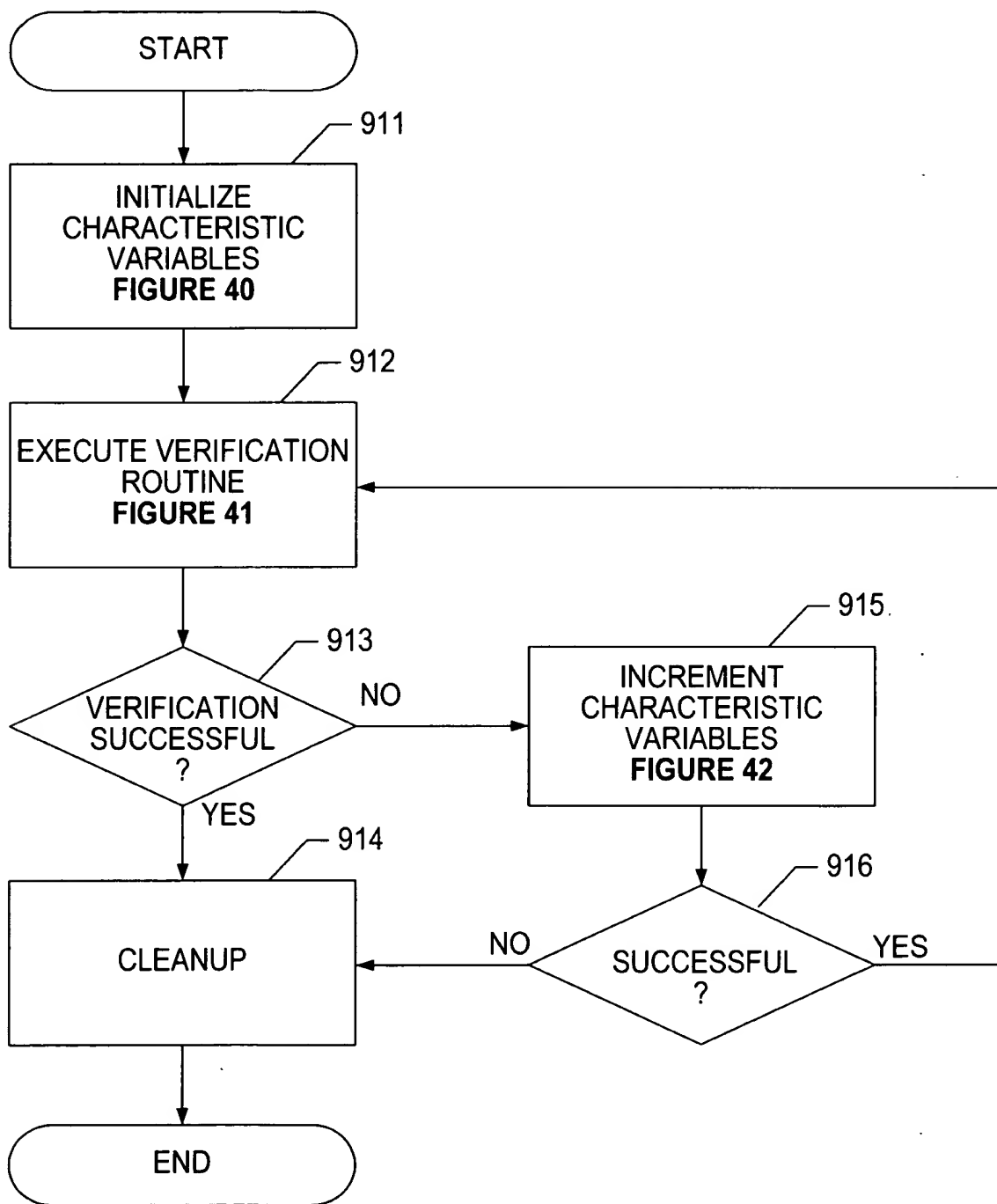*35/39*

FIG. 39

REPLACEMENT DRAWING

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Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

36/39

START →

921

T_ERROR_POLARITY = 0 {0,1}
T_START_POLARITY = 0 {0,1}
T_VALID_POLARITY = 0 {0,1}
BIT_ORDER = LSB {LSB,MSB}
CLOCK_POLARITY = 0 {0,1}

→

922

T_ERROR_POLARITY = 0 {0,1}
T_START_POLARITY = 0 {0,1}
T_VALID_POLARITY = 0 {0,1}
BIT_ORDER = LSB {LSB,MSB}
CLOCK_POLARITY = 0 {0,1}

→ END

FIG. 40

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

37/39

START

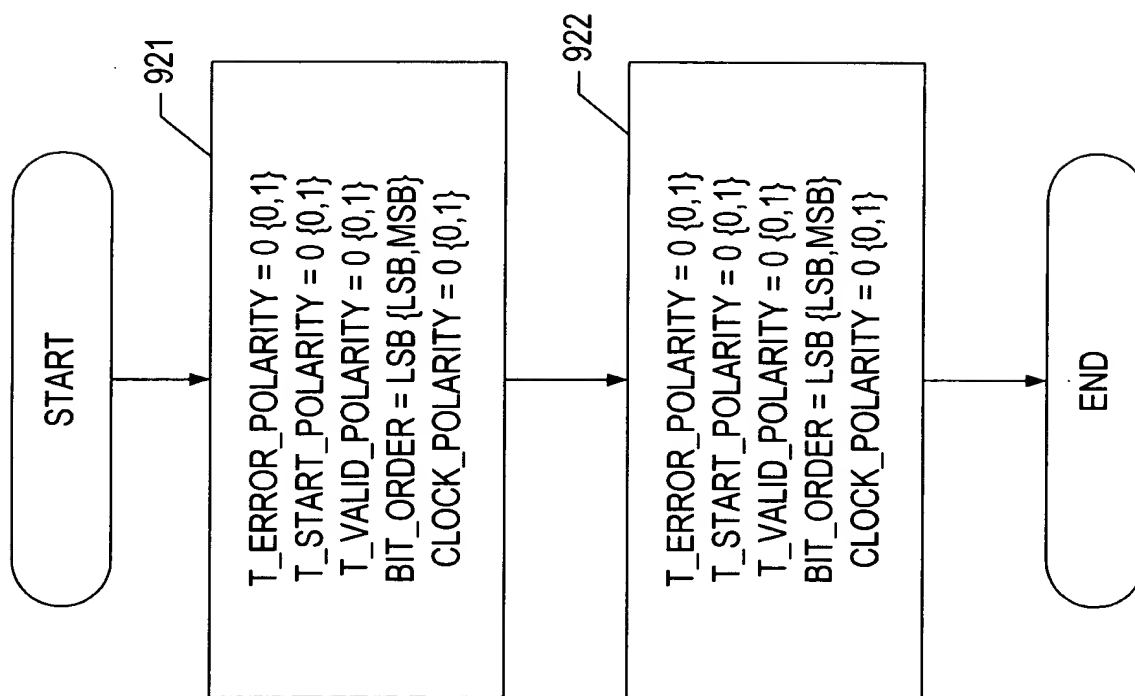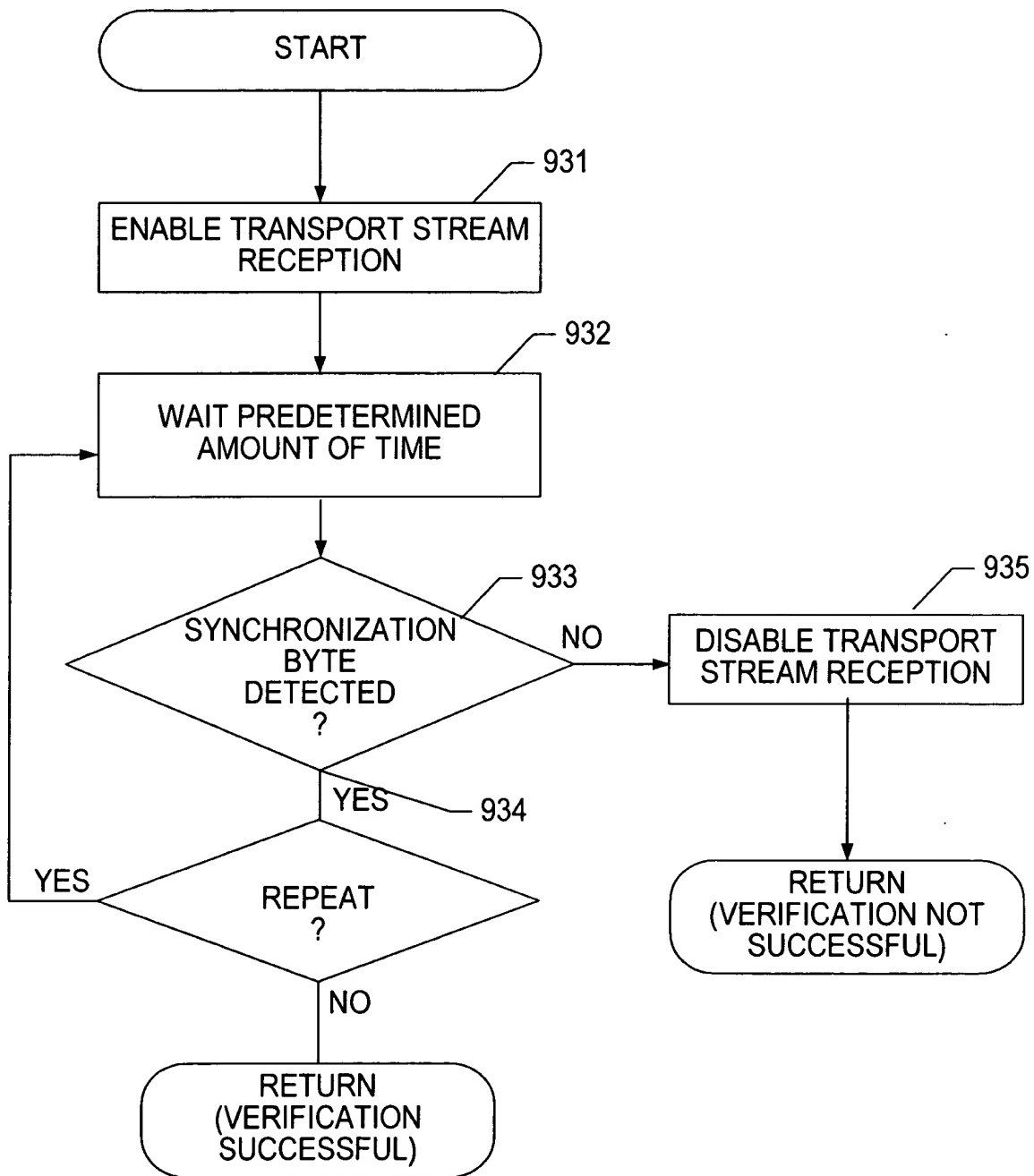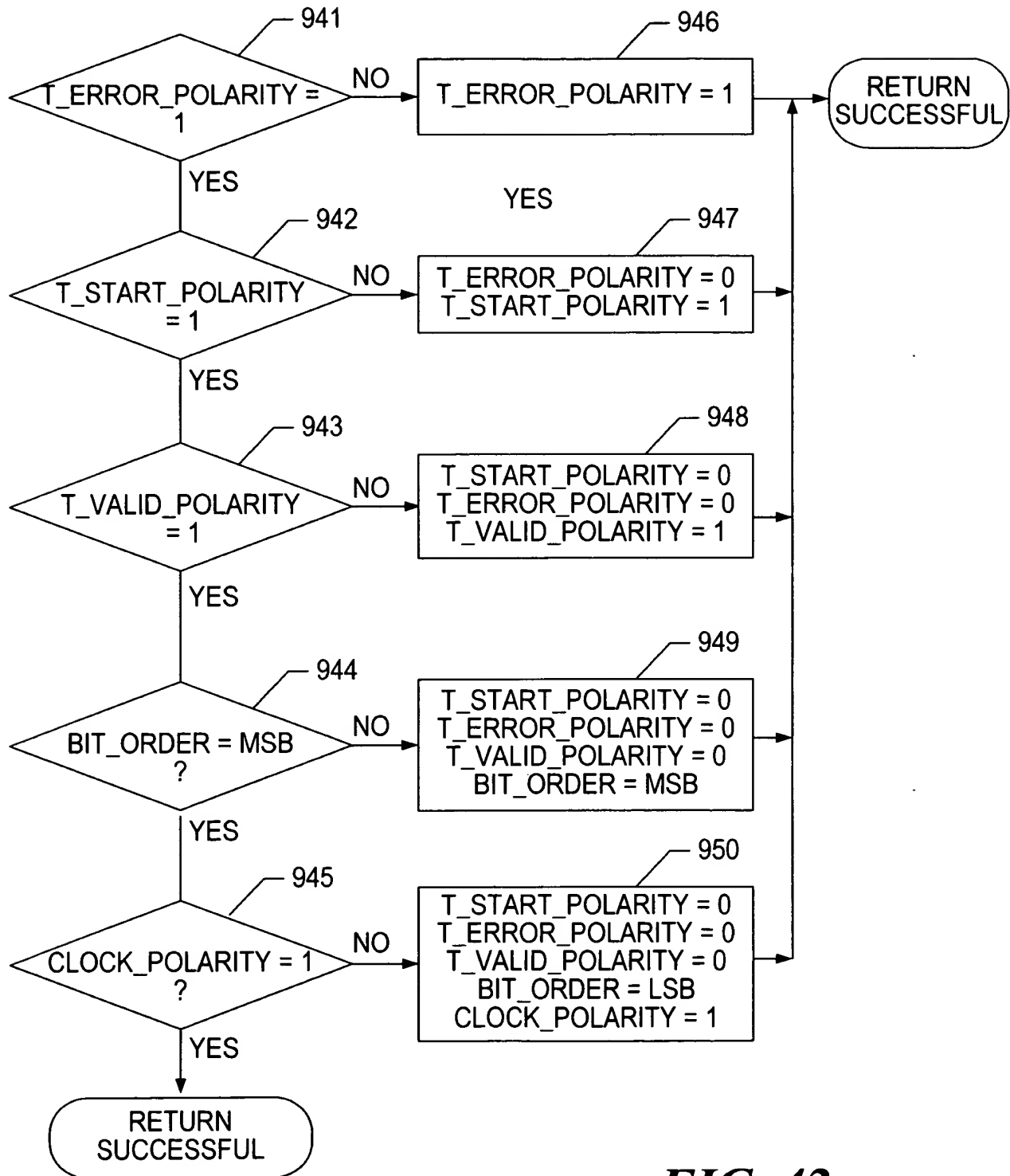ENABLE TRANSPORT STREAM RECEPTION — 931

WAIT PREDETERMINED AMOUNT OF TIME — 932

SYNCHRONIZATION BYTE DETECTED? — 933

NO → DISABLE TRANSPORT STREAM RECEPTION — 935

YES — 934

REPEAT?

YES

NO

RETURN (VERIFICATION NOT SUCCESSFUL)

RETURN (VERIFICATION SUCCESSFUL)

FIG. 41

REPLACEMENT ● App. No. 09/491,121 ●
DRAWING Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

38/39

FIG. 42

REPLACEMENT DRAWING

App. No. 09/491,121
Inventor: Branko Kovacevic et al.
Attorney: J. Gustav Larson (512 327-5515

39/39

FIG. 43